



ORIGINAL PAPER

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

Lavinia-Adelina Mitrache¹⁾, Daniel-Costin Matache²⁾

Abstract:

The recent escalation of geopolitical tensions, with special emphasis on the war in Ukraine, has led to various consequences, which are not limited only to the theatre of war but have significant effects on the global trajectory of sustainable development. It is evident from existing literature that wars have various effects, including those on the economic, environmental, and political dimensions of sustainable development, not only on the regions directly involved in the war but also on distant regions through global economic, environmental, and political systems.

The Russian-Ukrainian conflict shows that military aggression can have a simultaneous effect on the integrity of the environment, the economy, and social welfare. The damage to infrastructure, industrial accidents, and military activities all contribute to the degradation of the environment, which includes pollution, loss of biodiversity, and the disruption of ecosystems. At the same time, the Russian-Ukrainian conflict has heightened the global economic pressures by disrupting the energy sector, the food supply chain, and the inflation rate globally.

In addition to immediate damage to ecosystems, war is responsible for long-term damage to the environment, which can last for decades. Wars lead to pollution of soil, deforestation, and water pollution. Today, people are referring to it as ecocide, with a focus on the massive damage done to the environment as a result of wars. The complex nature of these impacts, therefore, suggests that sustainable development cannot be pursued without the consideration of geopolitical stability. The case in Ukraine demonstrates the vulnerability of SDGs strategies in the face of extensive conflicts, thus underscoring the need to incorporate resilience, environmental conservation, and cooperation in the formulation of future sustainable development policies. The understanding of these dynamics is imperative in the formulation of more effective governance policies aimed at promoting sustainable development in an unstable geopolitical environment.

Keywords: *Sustainable development, armed conflict, ecological impact, global economy, SDGs.*

¹⁾ PhD. Student, University of Craiova, Doctoral School of Economics Sciences” Eugeniu Carada”, Craiova, Romania. ORCID ID: 0009-0001-9514-3527.

²⁾ PhD. Candidate, University of Craiova, Doctoral School of Economics Sciences” Eugeniu Carada”, Craiova, Romania.

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

Introduction

The outbreak of the Russian-Ukrainian war in February 2022 marked one of the most significant geopolitical ruptures of the twenty-first century, fundamentally altering the trajectory of global stability, economic systems, and international cooperation. While the immediate human cost of the conflict has been immense (displacing millions of people, devastating urban infrastructure, and causing tens of thousands of casualties) the ramifications of the war extend far beyond the theatre of conflict itself. The war has generated a set of interconnected crises across energy, food, environment, and governance that have reverberated throughout global systems, undermining decades of progress toward sustainable development and testing the resilience of international institutions designed to preserve peace and promote shared prosperity.

In the years preceding the invasion, the global community had reaffirmed its commitment to the 2030 Agenda for Sustainable Development, a transformative framework structured around the seventeen Sustainable Development Goals (SDGs) adopted by the United Nations in 2015. These goals encompassed ambitious targets related to poverty eradication, clean energy access, climate action, responsible consumption, and the promotion of peace and inclusive institutions (SDG 16). Ukraine itself had been making measured progress toward several of these objectives, with particular advancement in areas related to affordable and clean energy (SDG 7), industry and infrastructure (SDG 9), and life on land (SDG 15), prior to the full-scale invasion. The war, however, not only reversed much of this progress domestically but also disrupted the global systems upon which SDG implementation depends, exposing a critical and often underappreciated vulnerability: the indissoluble link between geopolitical stability and sustainable development.

The consequences of the Russia-Ukraine conflict are not confined to any single dimension of sustainability. Rather, they manifest as a complex, interlocking set of crises that simultaneously affect the economic, environmental, and social pillars of the sustainable development paradigm. From an economic standpoint, the war triggered immediate and severe disruptions to global energy markets. Prior to 2022, the European Union sourced over 40% of its natural gas from Russia, a structural dependency that became acutely exposed when supply disruptions and pipeline sabotage forced an emergency reconfiguration of European energy supply chains. In the immediate aftermath of the invasion, prices of oil, coal, and natural gas spiked by approximately 40%, 130%, and 180% respectively within the first two weeks, generating inflationary shockwaves that were transmitted across global commodity markets.

The agricultural dimension proved equally destabilizing. Ukraine and the Russian Federation together account for a substantial share of global wheat, maize, and sunflower oil exports, making the disruption of Black Sea trade routes a direct threat to food security in importing nations across Africa, the Middle East, and South Asia. The Food and Agriculture Organization (FAO) warned that the conflict, compounded by preexisting inflationary pressures from the COVID-19 pandemic recovery, risked pushing approximately 23 million additional people into chronic hunger by 2030 compared to a scenario without the war. The Black Sea Grain Initiative, brokered in 2022, temporarily alleviated some of these pressures, facilitating the export of over 84 million tonnes of grain and foodstuffs between May 2022 and September 2023, but its collapse underscored the fragility of conflict-era international agreements.

The environmental consequences of the war have been equally alarming and have attracted growing scholarly and policy attention. The conflict has inflicted an estimated

€52.4 billion in environmental damage, including approximately €27 billion related to air quality degradation alone. Military operations have affected over 3 million hectares of forest, including protected ecological zones, while fires ignited by artillery have burned over 100,000 hectares of natural ecosystems. The deliberate detonation of the Kakhovka Dam in June 2023 released over 14 cubic kilometres of water, causing widespread flooding, the destruction of critical freshwater habitats, the loss of endangered species, and the eradication of a rare sterlet sub-population. These events have intensified the legal and ethical discourse around the concept of ecocide (the large-scale destruction of ecosystems) prompting calls for formal recognition under international criminal law.

Despite the growing volume of literature examining the economic and geopolitical dimensions of the Russia-Ukraine conflict, the academic scholarship addressing its comprehensive impact on sustainable development remains fragmented. Existing studies tend to treat the economic, environmental, and social consequences of the war as separate analytical objects, without sufficiently exploring the systemic interdependencies that link these dimensions within the broader SDG framework. Recent empirical work has begun to address the relationship between geopolitical risk and sustainable development outcomes, confirming that geopolitical instability exerts significant negative effects on economic development, energy security, and environmental sustainability across multiple country contexts. However, the Ukraine case provides an unprecedented opportunity to examine these dynamics in real time and at a global scale, given the centrality of both Russia and Ukraine to world energy and food supply chains.

Furthermore, the war has catalysed a set of paradoxical policy responses that complicate the sustainability transition. European governments, in seeking to rapidly diversify away from Russian fossil fuels, have faced difficult trade-offs between short-term energy security and long-term decarbonisation commitments. While some analysts argue that the crisis has ultimately accelerated Europe's renewable energy transition by increasing the urgency of energy independence, others caution that emergency investments in liquefied natural gas (LNG) infrastructure risk creating new forms of carbon lock-in that undermine climate goals. These tensions highlight the extent to which the war has forced a fundamental re-evaluation of the relationship between geopolitical security and sustainability governance.

Against this backdrop, the present paper investigates the multi-dimensional impact of the Russia-Ukraine war on sustainable development and global economic resilience. It advances the argument that the pursuit of sustainable development cannot be effectively operationalised in contexts of acute geopolitical instability, and that the existing SDG framework requires a more explicit integration of conflict prevention and resilience-building mechanisms. The paper further contends that the Ukraine case reveals structural vulnerabilities in the global governance architecture (particularly in the domains of energy security, food supply chain management, and environmental protection) that demand coordinated international responses grounded in principles of sustainability, equity, and long-term resilience.

Theoretical Framework

The concept of sustainable development has its intellectual roots in the landmark report *Our Common Future*, published in 1987 by the World Commission on Environment and Development, commonly known as the Brundtland Commission. In this seminal document, sustainable development was defined as „development that meets the needs of the present without compromising the ability of future generations to meet their own

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

needs” (Brundtland Commission, 1987). This definition established the foundation for a tripartite model of sustainability, structured around three interdependent pillars: economic growth, social equity, and environmental protection. The Brundtland Commission's contribution was not merely definitional; it emphasized the systemic interconnectedness of these three dimensions, arguing that meaningful progress in any single domain could not be sustained without commensurate advances in the others.

The operationalisation of this conceptual framework at the global level was significantly advanced by the adoption of the United Nations 2030 Agenda for Sustainable Development in 2015. As argued by Sachs (2015), the SDG framework represents a "goal-based approach to development" that integrates the economic, social, and environmental dimensions within a coherent international policy architecture (Sachs, 2015). The seventeen Sustainable Development Goals, accompanied by 169 specific targets, constitute a universal roadmap for collective action, encompassing objectives that range from the eradication of poverty (SDG 1) and the promotion of clean energy (SDG 7) to the protection of life on land (SDG 15) and the promotion of peace and inclusive institutions (SDG 16). This framework fundamentally repositioned sustainability from a sectoral concern to a cross-cutting imperative embedded in the governance architecture of 193 UN member states.

The relationship between geopolitical risk and sustainable development has received growing scholarly attention, particularly in the aftermath of major conflict events that have exposed the structural fragilities of the SDG implementation process. Geopolitical risks, broadly defined as the risk of events associated with wars, terrorist acts, and political tensions that disrupt the peaceful evolution of international relations, have been shown to exert significant negative effects on multiple dimensions of sustainable development (Caldara & Iacoviello, 2022).

From a theoretical standpoint, geopolitical instability affects sustainable development through three primary channels: economic disruption, environmental degradation, and institutional erosion. Recent empirical work conducted on a panel of 41 countries spanning the period 2015-2021 found that elevated geopolitical tensions significantly hinder progress towards the SDGs, with the most pronounced effects observed in Decent Work and Economic Growth (SDG 8) and Climate Action (SDG 13). The study further demonstrated that the negative effects were particularly acute in countries with high natural resource dependency, a finding of direct relevance to the Ukraine context, given the centrality of energy and grain resources to the conflict's global repercussions. Importantly, Nguyen et al. (2023) found that improvements in institutional quality could partially offset the detrimental effect of geopolitical risks on SDG progress, underscoring the governance dimension of sustainable development resilience.

More broadly, Wang et al. (2025) conducted a global analysis examining the impact of armed conflict on SDG progress between 2000 and 2021, employing causal inference methods and machine learning techniques. Their findings revealed that armed conflicts slowed overall SDG progress by 3.43%, equivalent to a developmental setback of approximately 18 years. Furthermore, their analysis showed that SDG 15 (Life on Land) was severely affected by both interstate and intrastate conflicts, with consequences lasting well beyond the cessation of hostilities. The non-linear relationship between increasing conflict intensity and SDG regression identified by these authors suggests that beyond certain thresholds of violence, the reversibility of development gains becomes highly uncertain as a finding that resonates strongly with the scale of the Russia-Ukraine war.

The relationship between geopolitical risk and environmental sustainability has also attracted dedicated empirical inquiry. Studies examining countries in the BRICS group have found that geopolitical risk increases the ecological footprint of national economies while constraining investments in renewable energy and clean technology (Li et al., 2024). Similarly, Wang et al. (2024), focusing on Asian economies, confirmed that geopolitical risk reduces environmental quality, as captured by the load capacity factor, while financial development and renewable energy consumption exert the opposite effect. These findings align with a broader theoretical proposition articulated in the sustainability governance literature: that geopolitical instability creates short-termist political economies in which environmental commitments are deprioritised in favour of immediate security and economic stabilisation objectives.

The theoretical literature on armed conflict and development has long recognised that wars simultaneously undermine the economic, social, and environmental dimensions of sustainability, though the interdependencies among these dimensions have been less systematically theorised. From the economic dimension, conflicts generate destruction of physical capital, displacement of productive labour, disruption of trade routes, and deterioration of the institutional frameworks necessary for market functioning. These direct effects are compounded by secondary transmission channels, including commodity price shocks, inflationary pressures, and the diversion of public expenditure from development toward defence.

The social dimension of conflict's impact on sustainability is equally severe. Wars exacerbate inequality, dismantle public health and education systems, generate large-scale forced displacement, and erode social cohesion, all factors that directly undermine progress toward SDGs related to poverty, health, education, and gender equality. The UNDP has documented extensive evidence of how active conflict suspends normal SDG monitoring and implementation processes, creating institutional vacuums that persist long after formal hostilities have ended (UNDP, 2023).

The concept of resilience (broadly understood as the capacity of a system to absorb shocks, adapt, and transform while maintaining its essential functions) has become central to contemporary sustainable development thinking (Mitache et al., 2024). In the context of geopolitical instability, resilience operates at multiple levels: economic resilience refers to the ability of national and regional economies to withstand external shocks and recover productive capacity; social resilience encompasses the ability of communities to maintain cohesion and adaptive capacity; and institutional resilience concerns the robustness of governance frameworks under stress conditions.

Spulbar et al. (2024) argue that sustainable development and regional resilience share deep conceptual synergies, with adaptive capacity (the ability to restructure systems in response to changing conditions) constituting the critical link between the two frameworks. This proposition is particularly germane to the post-conflict reconstruction context, where the rebuilding of economic, social, and institutional systems simultaneously offers an opportunity to reorient development trajectories toward greater sustainability. As further elaborated by Spulbar et al. (2024) in the context of digitalization and ESG synergies, corporate and institutional actors can actively shape the sustainability trajectories of regions they operate in, suggesting that the private sector has a meaningful role to play in conflict-affected reconstruction processes.

The governance dimension of SDG resilience under conflict conditions has been highlighted by Mitache et al. (2025), who argue that artificial intelligence and digital transformation represent emerging tools for promoting economic sustainability and

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

resilience, including in contexts of structural disruption caused by geopolitical shocks. This perspective aligns with a broader strand of the literature that emphasises the role of institutional innovation and technological capacity in enabling countries to maintain development momentum during and after conflict.

The energy dimension of geopolitical risk and sustainable development warrants particular theoretical attention in the Ukrainian context. Research by Erdogan et al. (2023) demonstrates that the energy trilemma (the challenge of simultaneously ensuring energy security, equity, and environmental sustainability) is directly mediated by geopolitical risk, with instability generating regime-dependent effects that can either accelerate or retard the sustainability transition depending on the institutional and economic context (Shirazi et al., 2023). This theoretical insight helps explain the paradoxical policy responses observed in Europe following the 2022 invasion, where the urgency of energy security led to short-term decisions that partially conflicted with long-term climate commitments.

Prior to the full-scale Russian invasion of February 2022, Ukraine had achieved measured progress across multiple SDG dimensions, particularly in areas related to energy access (SDG 7), agricultural productivity (SDG 2), and terrestrial ecosystems (SDG 15). However, as extensively documented in the SDG lens analysis of SDG 15 conducted by the Ukrainian civil society coalition (2023), Ukraine's progress on biodiversity protection and land management had already been constrained by the hybrid conflict initiated in the Donbas region in 2014, illustrating the cumulative nature of conflict-related SDG regression.

Economic Disruptions and Their Impact on Global Sustainable Development

The full-scale Russian invasion of February 2022 delivered an unprecedented macroeconomic shock to the Ukrainian economy. In its initial assessment, the World Bank estimated that Ukraine's economy would contract by approximately 45.1% in 2022 alone, a projection that, while revised downward as the Ukrainian economy demonstrated unexpected resilience, nonetheless captured the extraordinary scale of economic dislocation (World Bank, 2022). The actual contraction, confirmed by the State Statistics Service of Ukraine, was 28.8% in real GDP terms for 2022, still the most severe single-year economic contraction experienced by any country since the Second World War outside of active fragile state crises (GMK Center, 2025). A partial recovery of 5.5% was recorded in 2023, followed by modest growth of 2.9% in 2024, but as of the end of 2024 Ukraine's economy remained approximately 23% below its pre-war 2021 levels.

Table 3.1. Ukraine's Real GDP Dynamics, 2021-2024

Year	Real GDP Growth (%)	Key Driver
2021	+3.4%	Post-COVID recovery
2022	-28.8%	Full-scale Russian invasion
2023	+5.5%	Partial stabilisation, international support
2024	+2.9%	Continued recovery, declining momentum

Source: GMK Center (2025)

The destruction of productive capital has been extensive. Ukraine's industrial production index (base: 2016) collapsed from 101.7% in December 2021 to 69.3% by December 2024, while the construction output index fell from 199.7% to 83.6% over the

same period. The cumulative reconstruction and recovery cost was estimated by the World Bank, European Commission, the United Nations, and the Ukrainian government at \$486 billion as of December 2023, equivalent to 2.8 times Ukraine's anticipated GDP for that year, rising further to \$524 billion by early 2025 (World Bank, 2025). The IMF projected Ukraine's consumer price inflation at 21.1% for 2023, compared with 20.2% in 2022, placing a severe burden on household purchasing power and pushing large segments of the population into poverty.

These dynamics directly undermine SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation and Infrastructure), which require sustained positive GDP growth, rising labour productivity, and expanding industrial capacity. According to the UNU-MERIT analysis of the war's effects on SDG progress, the conflict has set back approximately 15 years of development progress, pushing an additional 7.1 million people into poverty and raising Ukraine's poverty rate to 24.1%, a direct reversal of progress under SDG 1 (No Poverty) (UNU-MERIT, 2024).

The energy dimension of the conflict generated the most immediate and globally transmitted economic shock. The European Central Bank documented that in the first two weeks following the invasion, prices of oil, coal, and natural gas spiked by approximately 40%, 130%, and 180% respectively, an energy price shock with no precedent in the post-Cold War era (ECB, 2022). The structural vulnerability underlying this shock was stark: prior to February 2022, Russia supplied approximately 40% of the European Union's pipeline natural gas imports. This dependency rendered European energy systems acutely exposed to supply disruption and created the conditions for a sustained inflationary shock that spread from energy markets into the broader economy.

Table 3.2. Energy Price Changes 2022

Energy Commodity	% Change (First 2 Weeks Post-Invasion)	Longer-Term Sustained Increase
Natural Gas	+180%	Remained elevated; EU household gas prices +79% by 2025 vs. 2021
Coal	+130%	+50% above pre-invasion levels by mid-2022
Crude Oil	+40%	+27% above pre-invasion level by mid-2022
EU Household Electricity	—	+30% between H1 2021 and H1 2025 (EU average)

Source: ECB (2022)

By 2025, Russia's share of EU pipeline gas imports had fallen sharply to approximately 6%, down from over 40% in 2021, as European countries accelerated diversification toward LNG, Norwegian gas, and renewable sources. However, the transition was not cost-free: EU household electricity prices rose by 30% between the first half of 2021 and the first half of 2025, while natural gas prices climbed by 79% over the same period. Notably, residential electricity prices increased by 88% in Bucharest between January 2021 and January 2026, a figure of direct national relevance, placing Romania among the most severely affected EU member states.

These dynamics create a fundamental tension within SDG 7 (Affordable and Clean Energy): the energy security imperative has accelerated investment in renewables

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

but simultaneously increased the short-term burden of energy costs on households, particularly in Central and Eastern Europe. The trade-off can be formalised as follows. Let $P_{e,t}$ represent the energy price level at time t , α the share of Russian gas in the energy mix, and $\Delta\alpha$ the rate of diversification. The short-term cost burden on households (C_h) is then:

$$C_h = P_{e,t} \cdot (1 - \Delta\alpha) + \phi \cdot I_{RES,t}$$

where ϕ captures the transition cost coefficient associated with investments in renewable energy infrastructure ($I_{RES,t}$). This stylised relationship illustrates the empirical observation that reducing α (dependency on Russian gas) imposes upfront costs before longer-term price reductions from renewables materialize, a tension extensively documented in the post-2022 European policy literature.

Ukraine and the Russian Federation collectively accounted for 26% of global barley exports, 15% of corn exports, 28% of wheat exports, and approximately 75% of sunflower oil exports in the 2020/21 marketing year. Ukraine's agricultural exports in 2021 totalled \$27.8 billion, representing 41% of the country's total exports of \$68 billion (S&P Global, 2022). The disruption of Black Sea shipping lanes, the destruction of agricultural infrastructure, and the mining of farmland created an immediate supply shock in global commodity markets that transmitted directly into food price inflation worldwide.

Table 3.3. Ukraine and Russia: Share of Global Agricultural Exports (2020/21)

Commodity	Combined Global Share	Ukraine's Specific Share
Wheat	~28%	~10.5% of world exports
Corn (Maize)	~15%	~12.8% of world exports
Sunflower Oil	~75%	~33% (2026 estimate)
Barley	~26%	Significant exporter
Fertilizers	—	Russia: world's largest exporter in 2020

Source: S&P Global (2022)

The supply shock in fertilizer markets was particularly severe. Russia is the world's largest exporter of fertilizers, with Brazil (21%), China (10%), the United States (9%), and India (4%) as primary destinations (Glauber & Laborde, 2022). International sanctions and logistical disruptions drove global fertilizer prices to record levels in March 2022, with Bloomberg's Green Markets North America Fertilizer Price Index reaching an all-time high of 1,270.4 on March 25, 2022, surpassing the previous record of 932.3 set in 2008. Fertilizer prices had increased approximately 30% by early 2022 following an 80% hike in 2021. Meanwhile, EU-level agricultural input costs rose by 95% in Q1 2022 compared to Q4 2021, including a 21.2% increase in fertilizer and soil enhancer prices and a 17.4% surge in energy and lubricants used in farming (Reuters, 2022).

The downstream impact on food security has been devastating at the global scale. According to data, approximately 122 million more people were pushed into hunger between 2019 and 2022, bringing the total number of people facing hunger to around 735 million by 2023, compared to 613 million in 2019. Adjusted for inflation, global food prices reached a 60-year high in March 2022. Research published in the SDGs Review journal estimated that the Ukraine conflict has directly resulted in 1.7 billion people experiencing food insecurity and 276 million facing severe food insecurity worldwide. The UN Second Committee warned that the combined effects of the pandemic and the

Ukraine conflict would lead to a net increase of 75 to 95 million people in extreme poverty by the end of 2022 compared to pre-pandemic projections (UN, 2022).

These figures represent a quantifiable regression in SDG 2 (Zero Hunger) progress. Using the FAO's simple hunger-gap metric, the increase in the number of people experiencing hunger ΔH relative to the pre-war trajectory can be approximated as:

where

H_t is the observed number of food-insecure individuals at time

t and $H^{baseline}$ represents the counterfactual trajectory absent the supply shock.

Applying to our data, the Ukraine-attributable increment in ΔH has been estimated at approximately 23 million additional people at risk of chronic hunger by 2030 relative to the pre-war SDG 2 trajectory.

The economic transmission of war-related shocks across global systems provides a concrete illustration of how a regional conflict can undermine multiple SDGs simultaneously through interconnected commodity, financial, and trade channels. The energy and food price spikes described above were major drivers of the global inflation surge of 2022–2023, which central banks across advanced and emerging economies were forced to counteract through aggressive monetary policy tightening. The resulting rise in global interest rates increased the cost of borrowing for developing countries, exacerbated debt sustainability concerns, and diverted fiscal resources from development spending directly undermining SDG 17 (Partnerships for the Goals) by constraining the financial capacity of states to fund SDG implementation (World Bank, 2022).

Table 3.4. Summary of War-Attributable Economic Impacts Across Key SDGs

SDG	Target	Quantified Impact
SDG 1 - No Poverty	Poverty reduction	+7.1 million pushed into poverty in Ukraine; +75–95 million globally in extreme poverty
SDG 2 - Zero Hunger	Food security	735 million hungry globally (2023); +122 million vs. 2019; 60-year high food prices in March 2022
SDG 7 - Affordable & Clean Energy	Energy access & affordability	Natural gas prices +180% in 2 weeks; EU household gas +79% by 2025
SDG 8 - Decent Work & Economic Growth	GDP growth	Ukraine GDP –28.8% in 2022; 23% below pre-war levels in 2024
SDG 9 - Industry & Infrastructure	Infrastructure reconstruction	\$524 billion reconstruction cost; industrial output index –32%
SDG 10 - Reduced Inequalities	Income distribution	Food and energy inflation disproportionately affects low-income countries and households
SDG 17 - Partnerships for Goals	Development finance	Interest rate rises reduce developing country fiscal space for SDG investment

Source: Developed by the authors based on analyzed data

The asymmetric impact of the war's economic consequences is particularly pronounced with respect to SDG 10 (Reduced Inequalities). Food price inflation functions as a regressive tax: households in low-income countries, which spend 50–85% of their income on food (IMF, 2023), and sub-Saharan African nations that import between 50%

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

and 85% of their staple foods, are disproportionately exposed to global commodity price shocks. This distributional dimension underscores that the economic consequences of the war in Ukraine are not merely a question of aggregate growth contraction but involve fundamental questions of intergenerational and international equity the core normative commitments of the 2030 Agenda.

Building Resilient Sustainable Development

The empirical evidence assembled across the preceding chapters leads to an unavoidable conclusion: the 2030 Agenda for Sustainable Development, as currently designed, operates under an implicit assumption of relative geopolitical stability that the Russia-Ukraine war has exposed as fundamentally fragile. The SDG framework was constructed as a peacetime instrument, a consensus document negotiated among nations in a period of relative multilateral cooperation, where the principal challenges to development were understood as structural (poverty, inequality, climate change, institutional weakness) rather than catastrophic and sudden. The war in Ukraine has demonstrated that this design premise is insufficient. The SDGs cannot be treated as a trajectory that countries follow in a linear progression; they are, rather, deeply contingent outcomes that can be reversed within months by geopolitical shocks of sufficient magnitude.

In our view, the most fundamental reform required is the explicit integration of a conflict-resilience pillar into the SDG governance architecture. This would not mean militarising the development agenda or conflating security policy with sustainability policy. Rather, it would mean acknowledging, formally and operationally, that progress toward sustainable development goals must be evaluated not only against socioeconomic baselines but against geopolitical risk profiles. Countries and regions that exist in proximity to zones of potential conflict or that are deeply integrated into commodity supply chains that run through politically unstable territories should be required to develop explicit SDG resilience scenarios: contingency frameworks that map how their SDG progress would evolve under different geopolitical shock intensities, and what emergency policy levers would be activated in response.

One of the clearest policy lessons of the post-2022 energy crisis is that the green energy transition and energy security are not synonymous and that failing to distinguish between them carries significant costs. The European experience has illustrated that a rapid transition away from fossil fuels can be simultaneously correct from a long-term climate perspective and deeply disruptive in the short term if it is not accompanied by adequate investment in energy storage, grid interconnection, and demand flexibility. Countries that accelerated renewable deployment after 2022 in response to the energy crisis (notably Germany, Poland, and Romania) found that the intermittency of renewables and the underdevelopment of storage infrastructure limited the extent to which new capacity could substitute for baseload gas in the immediate term.

In our view, the policy conclusion that should be drawn from the Ukraine experience is that energy security must be reconceptualised as a multi-layered resilience property, not merely a question of supply diversification. A robust energy resilience framework would combine:

- genuine diversification across primary energy sources, including the strategic retention of nuclear capacity as a low-carbon baseload option;
- the development of strategic energy reserves — not only in the form of physical gas storage but also in demand-side flexibility and smart grid capability;

- the rapid buildout of regional energy interconnectors, particularly in Central and Eastern Europe, which remain disproportionately exposed to supply disruptions from the east;
- the integration of social equity considerations into energy transition policy, ensuring that the cost of diversification is not borne disproportionately by low-income households, a dimension that was systematically neglected in the 2022-2023 emergency response across several EU member states.

The war's impact on global food security has revealed a dangerous structural deficiency in the contemporary architecture of international agricultural trade: the excessive concentration of global supply in a small number of producing countries and the corresponding dependency of importing nations (particularly in Africa and the Middle East) on a handful of Black Sea export corridors. This concentration is, in part, an efficient market outcome: Ukraine and Russia produce grain at lower cost than most alternative suppliers. But efficiency and resilience are not the same property, and the food system shock of 2022 demonstrated that the welfare cost of over-concentration can be catastrophic when a supply disruption materialises.

We propose that the international community should pursue a deliberate policy of agricultural supply chain regionalization, not protectionism or autarky, but a conscious effort to develop alternative productive capacity in food-importing regions, reduce dependence on single-corridor logistics, and build global grain reserve systems capable of buffering supply shocks of the scale observed in 2022. The SDG 2 target of ending hunger by 2030 cannot be achieved without confronting this structural vulnerability. Furthermore, the international fertilizer supply chain, which remains heavily concentrated in Russia and China, requires specific attention: the development of alternative sources of nitrogen, phosphate, and potash (including through investment in circular economy approaches to nutrient recovery) should be treated as a strategic priority equivalent to energy diversification.

A specific operational reform that we consider both feasible and urgently needed is the integration of geopolitical risk indicators into the SDG monitoring and reporting framework maintained by the UN Statistics Division. Currently, the global SDG indicator framework contains 231 indicators across 169 targets, none of which explicitly captures the geopolitical risk environment in which SDG implementation occurs. We argue that this represents a significant design gap.

Concretely, we propose the development of a composite Geopolitical-SDG Vulnerability Index (GSVI), a country-level metric that combines: (a) the intensity of geopolitical risk exposure, measured using established indices such as the Caldara-Iacoviello Geopolitical Risk Index; (b) the degree of commodity supply chain concentration and dependency; (c) the strength of institutional frameworks for emergency response; and (d) the proximity to active conflict zones and their historical frequency. This index could be incorporated into the VNR (Voluntary National Review) process, requiring countries to report on their GSVI alongside their SDG progress metrics, thereby creating institutional visibility for geopolitical risk in development planning and enabling targeted international support for the most vulnerable states.

The war has also exposed a significant gap in the international development finance architecture. Existing multilateral development finance instruments including World Bank lending facilities, IMF support programmes, and EU cohesion instruments were not designed to function at the scale required by a middle-income country experiencing a war of the magnitude of the Russia-Ukraine conflict. While the

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

international community mobilised approximately \$43 billion in financial support for Ukraine in 2023 alone, this support has been largely reactive and improvised, channelled through emergency instruments rather than through a systematic framework designed to preserve SDG progress during active conflict.

In our view, the international community should establish a dedicated SDG Conflict Resilience Fund, a multilateral financial instrument specifically designed to provide rapid, large-scale, and conditioned development finance to countries experiencing or recovering from geopolitically induced development setbacks. The fund's conditionality structure should differ fundamentally from standard IMF programme conditionality: rather than focusing primarily on macroeconomic stabilisation, it should be oriented toward preserving and rebuilding SDG-relevant institutional capacity healthcare systems, educational infrastructure, social protection networks, and clean energy assets with explicit requirements for environmental accountability and green reconstruction principles. This instrument would operationalise the principle that the international community has a collective interest in preventing SDG regression in conflict-affected countries, given the spillover effects of such regression on global food, energy, and financial systems.

Finally, we argue that the reconstruction of Ukraine (which the World Bank estimates will cost \$524 billion) should be approached not merely as the restoration of pre-war conditions but as a transformative opportunity to build a qualitatively different, more sustainable economy. Ukraine's pre-war energy system was characterised by high carbon intensity, ageing Soviet-era infrastructure, and significant energy inefficiency. The reconstruction process, if designed with SDG alignment at its core, could instead produce a modern, low-carbon energy grid built predominantly on renewables and nuclear, an industrial sector rebuilt to current environmental standards, and an agricultural system that incorporates precision agriculture and regenerative farming practices in place of the input-intensive models that previously dominated.

This vision of green reconstruction as SDG acceleration is not merely idealistic. It is financially rational: the cost of building sustainable infrastructure from scratch, on cleared brownfield sites, is in many cases lower than retrofitting existing structures; international climate finance instruments, including the EU Green Deal's external dimension, create incentive structures that reward zero-carbon reconstruction over like-for-like rebuilding; and the competitive advantage that a modern, low-carbon Ukrainian economy would enjoy in EU market integration provides a powerful long-term rationale for sustainable reconstruction investment. The Ukraine case could, in this sense, become not only a cautionary tale about the vulnerability of sustainable development to geopolitical shocks, but a demonstration case for how conflict-affected countries can leverage reconstruction to leapfrog conventional development pathways and achieve SDG alignment at a compressed timescale.

Conclusions

The investigation was structured around four analytical axes each of which has generated findings that, taken together, support the central thesis advanced from the outset: that sustainable development is a geopolitically contingent achievement, not an irreversible progression, and that the 2030 Agenda requires fundamental architectural reform to remain meaningful in an era of renewed great-power conflict.

From an economic standpoint, the war produced a shock of extraordinary amplitude across global commodity, energy, and financial systems. Ukraine's GDP

contracted by 28.8% in 2022 (the most severe peacetime economic collapse recorded for a middle-income country in recent history) while the reconstruction cost estimate has risen to \$524 billion, equivalent to 2.8 times the country's annual output. Energy prices spiked by up to 180% within days of the invasion, global food prices reached a 60-year high in March 2022, fertilizer prices surged to record levels, and approximately 122 million additional people were pushed into hunger between 2019 and 2023. The war has measurably reversed progress across SDG 1, SDG 2, SDG 7, SDG 8, SDG 9, SDG 10, and SDG 17, not only in Ukraine but across the global system of development indicators.

From a governance standpoint, the war has exposed three fundamental inadequacies in the current architecture of global sustainable development governance: the absence of conflict-resilience mechanisms within the SDG framework; the lack of dedicated multilateral financial instruments for SDG preservation during active conflict; and the insufficiency of international legal frameworks for the protection of environmental assets during warfare. Addressing these inadequacies requires not only institutional innovation but a normative reorientation, a willingness to accept that geopolitical stability is a prerequisite for sustainable development and must therefore be treated as a development objective in its own right.

The war demonstrated that Europe's dependencies on Russian gas, Ukrainian grain, and Russian fertilizers constituted systemic risks that were inadequately mapped, monitored, and managed prior to 2022. We propose the adoption of a European Directive requiring all EU member states to conduct mandatory Strategic Commodity Dependency Assessments (SCDAs) for a defined list of critical commodities, energy carriers, agricultural staples, fertilizers, and critical minerals, identifying maximum acceptable import concentration thresholds from any single source country or geopolitical bloc. Member states exceeding these thresholds would be required to present binding diversification roadmaps within 24 months of a formal Commission notification. The Directive should be complemented by an EU-level Strategic Commodity Reserve System (SCRS), extending the existing EU emergency gas storage regulation (Regulation 2022/1032) to cover grain, fertilizers, and selected critical minerals, with mandatory minimum reserve levels set at 90 days of consumption equivalent.

The EU's existing emergency economic governance instruments, including the Council Regulation on a gas demand reduction framework and the temporary State aid crisis framework adopted in 2022, were improvised responses to an unexpected shock, not components of a pre-designed resilience architecture. We propose the adoption of a SEEG Regulation establishing a permanent framework for the activation of coordinated EU economic governance measures in response to geopolitically induced development crises. The Regulation would define an Economic Development Emergency (EDE) trigger mechanism, activated by a qualified majority Council vote in response to a geopolitical event causing documented regression in SDG indicators across three or more member states, and would pre-authorise a defined set of coordinated policy responses, including: temporary suspension of State aid rules for SDG-critical investments; activation of EU-level price stabilisation mechanisms for energy and food; acceleration of cohesion fund disbursements to affected regions; and the issuance of SDG Emergency Bonds dedicated EU fiscal instruments, similar in structure to the NextGenerationEU SURE bonds, earmarked for SDG-preservation expenditure.

We propose a dedicated ERTJT Directive requiring member states to develop and maintain National Energy Resilience Plans (NERPs) living documents, updated biannually, that map energy system vulnerabilities under geopolitical shock scenarios of

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

varying severity and specify the policy response architecture for each scenario. The Directive should include mandatory social equity safeguards: in the event of an energy crisis activation, member states would be required to implement automatic household energy bill support mechanisms for the bottom two income quintiles, financed through a European Solidarity Energy Fund, preventing the recurrence of the regressive distributional impacts observed in 2022-2023, when the poorest European households bore the largest proportional energy cost burden.

The Russia-Ukraine war has not merely disrupted the specific SDG trajectories of two countries. It has revealed the structural incompleteness of the global sustainable development project as it has been conceived since 1992. A development agenda that does not explicitly incorporate mechanisms for geopolitical resilience, for the protection of development gains during conflict, for the rapid restoration of sustainable trajectories after conflict, and for the legal accountability of those who destroy ecosystems and economic systems in pursuit of military objectives, is an agenda built on an assumption of permanence that history does not support.

The institutional innovations proposed in this paper the CCSCR Directive, the SEEG Regulation, the WEPEL Directive, the ERTJT Directive, and the GRIDF Regulation are not merely technical instruments. They represent a normative commitment: a recognition that the European Union, as the world's most advanced experiment in rules-based multilateral governance, has both the capability and the responsibility to develop legal and economic frameworks that protect the sustainable development achievements of its neighbourhood and, by extension, of the global system in which those achievements are embedded. The costs of such institutional investment are real but finite. The costs of failing to make it, as the experience of 2022 has demonstrated, are neither.

Authors' Contributions:

The authors contributed equally to this work.

References:

- Brundtland Commission. (1987). Our common future: World commission on environment and development.
- Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. *American economic review*, 112(4), 1194-1225.
- Li, H., Ali, M. S. E., Ayub, B., & Ullah, I. (2024). Analysing the impact of geopolitical risk and economic policy uncertainty on the environmental sustainability: evidence from BRICS countries. *Environmental Science and Pollution Research*, 31(34), 46148-46162.
- Mitrache, L. A., Spulbar, L. F., & Mitrache, D. M. (2024). Synergies Of Regional Resilience and Sustainability Paradigms. Exploring Adaptive Capacities in the Context of Economic Transformation. *Revista Tinerilor Economisti*, 21, 43.
- Mitrache, L. A., & Spulbar, L. F. (2025). The Role of Artificial Intelligence in Promoting Economic Sustainability and Resilience. *Revista de Stiinte Politice*, (88), 235-245.
- Nguyen, D. T., Le, T. H., Do, D. D., & Nguyen, H. N. (2023). Does geopolitical risk hinder sustainable development goals? Evidence from a panel analysis. *Journal of environmental management*, 347, 119204.

- Sachs, J. D. (2015). Goal-based development and the SDGs: Implications for development finance. *Oxford Review of Economic Policy*, 31(3-4), 268-278.
- Shirazi, M., Fuinhas, J. A., & Silva, N. (2023). Sustainable economic development and geopolitics: The role of energy trilemma policies. *Sustainable Development*, 31(4), 2471-2491.
- Spulbar, L. F., Mitache, M. D., & Mitache, L. A. (2024). Digitalization and ESG Synergies. Transforming Regional Development Through Corporate Actions. *Annals of Constantin Brancusi University of Targu-Jiu. Economy Series/Analele Universității Constantin Brâncuși din Târgu-Jiu Seria Economie*, (6).
- Wang, W., Balsalobre-Lorente, D., Anwar, A., Adebayo, T. S., Cong, P. T., Quynh, N. N., & Nguyen, M. Q. (2024). Shaping a greener future: The role of geopolitical risk, renewable energy and financial development on environmental sustainability using the LCC hypothesis. *Journal of Environmental Management*, 357, 120708.
- Wang, D., Xu, Z., Pascual, U., Liu, L., Ahmad, W., & Jiang, D. (2025). Exploring the role of armed conflict in progress toward Sustainable Development Goals: Global patterns, regional differences, and driving mechanisms. *Geography and Sustainability*, 100355.
- *** - ECB. (2022). https://www.ecb.europa.eu/press/economic-bulletin/focus/2022/html/ecb.ebbox202204_01~68ef3c3dc6.en.html
- *** - GMK Center. (2025). <https://gmk.center/en/infographic/ukrainian-economy-in-2024-was-23-below-pre-war-levels/>
- *** - IMF. (2023). <https://www.elibrary.imf.org/view/journals/068/2023/002/article-A001-en.xml>
- *** - S&P Global. (2022). <https://www.spglobal.com/market-intelligence/en/news-insights/research/ukraine-agriculture-exports-what-is-at-stake>
- *** - Reuters. (2022). <https://www.reuters.com/markets/commodities/ukraine-wars-disruption-sends-agriculture-input-prices-up-nearly-10-q1-eurostat-2022-07-01/>
- *** - UN. (2022). <https://press.un.org/en/2022/gaef3571.doc.htm>
- *** - UNDP. (2023). <https://www.undp.org/ukraine/press-releases/sustainable-development-goals-during-war-undp-and-government-ukraine-held-series-strategic-sessions>
- *** - UNU MERIT. 2024. <https://unu.edu/merit/news/ukraine-and-sdgs-how-war-has-influenced-global-development>
- *** - WorldBank. (2022). <https://www.worldbank.org/en/news/press-release/2022/04/10/russian-invasion-to-shrink-ukraine-economy-by-45-percent-this-year>
- *** - WorldBank. (2025). <https://data360.worldbank.org/en/economy/UKR>

Article Info

Received: July 02 2026

Accepted: August 20 2026

The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience

How to cite this article:

Mitrache, L. A., Matache, D. C. (2026). The Impact of the War in Ukraine on Sustainable Development and Global Economic Resilience. *Revista de Științe Politice. Revue des Sciences Politiques*, no. 91, pp. 96-111.