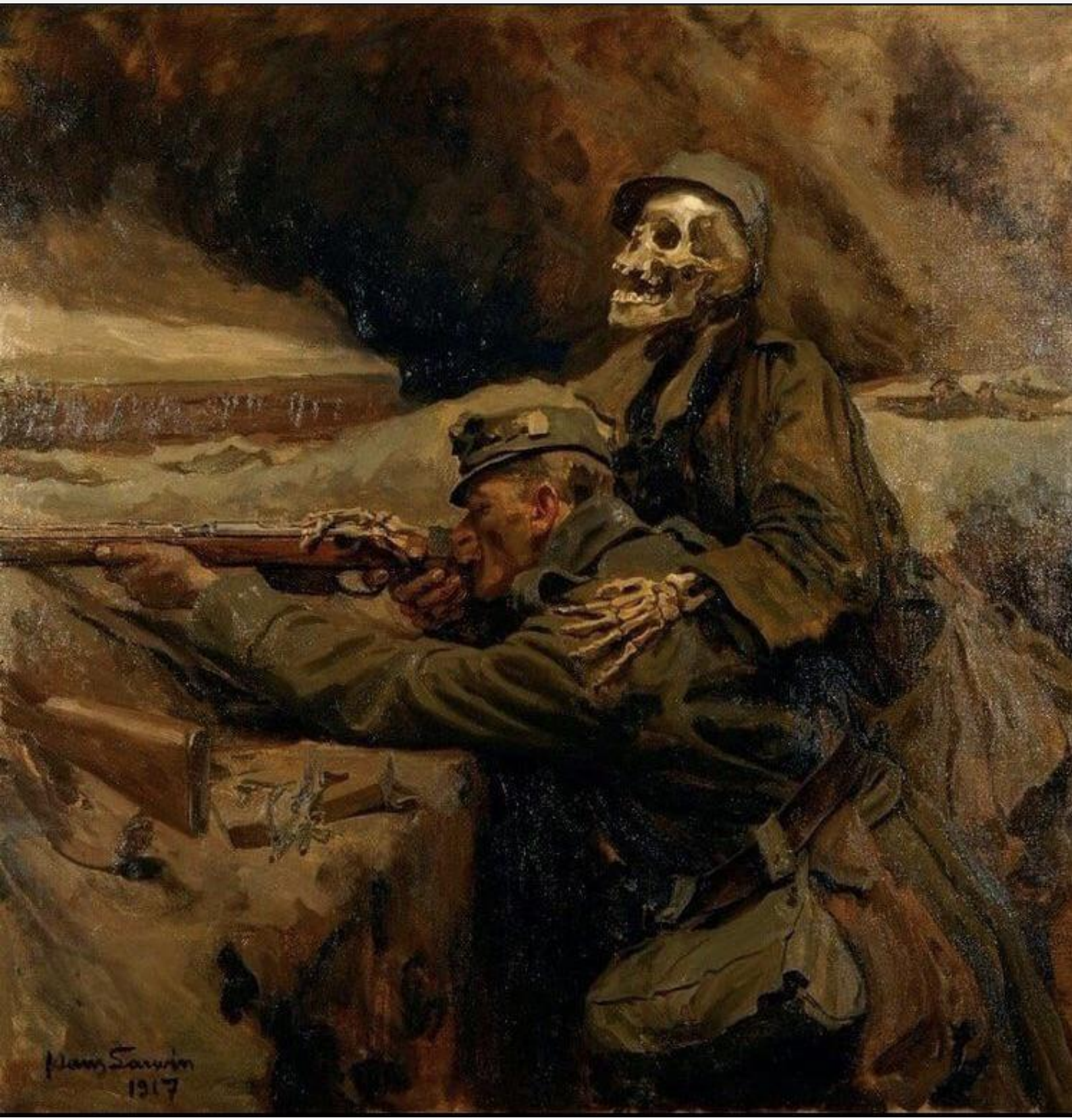
Discussion

in the Journal *Pollution and Diseases*[1]



War and Peace: The Production of Human Environments

Dmitry Nikolaenko

[1] **Death and the Soldier, Hans Larwin, 1917**

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This article examines war as a long-term environmental process that systematically reshapes human habitats, with particular emphasis on freshwater systems. It argues that contemporary warfare cannot be understood solely as a political or military phenomenon, but must be analyzed as a mechanism of ecological transformation with cumulative consequences for public health. Drawing on the concept of rhythmicity, the paper demonstrates that certain regions—most notably Crimea and Donbas—are repeatedly subjected to cycles of military destruction, population displacement, and environmental degradation. Special attention is given to the role of scientific communities in legitimizing and enabling ecologically destructive military practices. The concept of super-normal science is introduced to explain the structural readiness of expert communities to support state-driven projects of ecocide. The article concludes that war has become an integral component in the production of contaminated human environments and calls for a systemic rethinking of scientific responsibility in the context of armed conflict.

Keywords: war and environment, freshwater systems, military pollution, ecocide, aquacide, super-normal science, scientific responsibility, rhythmicity of warfare, public health, post-Soviet space.

You reap what you sow.

INTRODUCTION

Relevance of the Discussion

War, the natural environment, and human disease constitute a topic of exceptional contemporary relevance. Despite this, the environmental and health dimensions of armed conflict remain insufficiently conceptualized and poorly integrated into systematic scientific discourse. There exists a substantial number of fundamentally important questions for which a clear deficit of knowledge can be identified.

The reality of war advances faster than scientific reflection. The war in Ukraine has introduced numerous novelties. These are not limited to innovations of a strictly military nature, such as the widespread and highly effective use of drones. The understanding of legitimate targets of military activity has also changed radically.

Energy infrastructure of a neighboring state has become a legitimate target. For the first time in human history, nuclear power plants have been seized during active military operations. There have been two such cases: one involving the Chernobyl Nuclear Power Plant, and another involving the Zaporizhzhia Nuclear Power Plant, which remains under the control of the Russian Federation. All elements of the oil and gas industry have likewise become legitimate targets. The chemical industry has not been exempted.

Of particular concern is the fact that *freshwater systems have also become legitimate targets.* The concept of ecocide may be refined to include a specific subcategory that can be described as *aquacide*. The adversarial state is to be left without access to freshwater. In pursuit of this "strategic objective," virtually any action is considered permissible. The destruction of the Nova Kakhovka dam serves as an illustrative example. This act deprived an extensive region of freshwater resources.

The cascading and long-term consequences of such actions, as well as the fact that natural systems exhibit a high degree of autonomy from human control, are not taken into account. The focus remains on the immediate operational objective—nothing more.

From an ecological perspective, the innovations of the war in Ukraine are overtly catastrophic. All newly defined "legitimate targets" are identified through expert analysis. Military personnel merely "carry out their duties." They are war criminals, yet they function primarily as technical executors. Decisions regarding what must be done are articulated by expert communities.

The scientific community plays an exceptionally important role in the planning of such operations. There is no discernible concern for what will remain after the next reconfiguration of a state border. Nature has effectively ceased to exist as an independent consideration. There is only the task of direct territorial control. Nature reappears only insofar as it provides an opportunity to inflict maximal ecological damage on the adversarial state. The greater the damage, the better.

Subject and Objectives

The subject of this paper is an attempt to formulate a problem framework for a *systematic scientific discussion* within a new academic journal. The fact that this is a *new* journal is of particular importance. A new journal is not constrained by inherited conventions. A substantial accumulation of unresolved questions requires reconsideration.

The objectives of this contribution are as follows.

First, to identify fundamental issues in the study of war-related environmental impacts, taking into account that *military activity itself has changed*. A tectonic shift has occurred. Following a period of confrontation between superpowers based on vast arsenals of weapons of mass destruction—arsenals that were largely not used—the dominant mode of warfare has shifted toward localized actions. In that earlier configuration, it was evident that "there would be no winners." (*Bunge, 1962; 1973; 1988*) The cumulative effect of localized military actions, however, may generate catastrophic ecological consequences. To what extent will there be "winners" or "no winners" under this new strategy of warfare?

Second, to draw attention to critical gaps and failures in existing research on the ecological consequences of war. Military activity constitutes a component of the creation of human habitats. It is associated with complex ecological relationships that are difficult to capture within current analytical frameworks—partly because there is little intention to capture them. The scientific community is often preoccupied with actively supporting its own state in confrontation with perceived adversaries. We are dealing with a *new quality of scientific community*, one that formulates and resolves problems differently. It does not operate on the side of cognition; it operates on the side of the state and concerns itself primarily with the implementation of state-defined objectives.

Third, to articulate principled positions regarding the influence of military activity on natural environments and human health. Numerous new "legitimate targets" of military activity have emerged. Where will this lead? For example, what will be the outcome of deliberately targeted activity that may be described as *aquacide*? As a result of such confrontations, water supply systems in territories inhabited by hundreds of millions of people may deteriorate dramatically. Military activity of this type did not previously exist on a systematic basis. In its new configuration, it appears to be becoming central.

Fourth, the issue is no longer limited to the stable provision of populations with high-quality drinking water—this stage has already been passed. Freshwater now emerges as an arena in which multiple crises converge: chemical contamination, microbial transformation, sediment remobilization, aging infrastructure, climate-driven hydrological volatility, and governance failures that often remain invisible until their biological consequences become irreversible. The situation with freshwater systems is far more severe and complex than is commonly acknowledged.

What has occurred is an intrusion into a natural system of extraordinary complexity—one that operates through multi-scale interactions among chemical signals, biological adaptation, and ecological regulation. In this sense, freshwater degradation should not be understood as a linear decline in "quality," but as a *restructuring of environments*, within which new and insufficiently studied states may arise, including states with unexpected infectious properties.

Fifth, super-normal science has become an integral component of this new type of military activity. Military actors function primarily as technical executors. Expert communities—often not strictly scientific in nature—define objectives. "White-collar" specialists determine what must be done and how strategies of this type are to be implemented. Is this merely a characteristic of post-Soviet scientific communities, which emerged from a Soviet totalitarian standard and transformed into something new? Or does this represent another tectonic shift in the development of science itself?

From institutional science, in which organizational structures sharply dominate individual researchers, are we collectively transitioning to *super-normal science*, in which the scientist becomes indifferent to the substance of the task—whether providing scientific justification for aggression against a neighboring state or designing the most efficient form of ecocide?

Sixth, research interest in the environmental consequences of war is typically activated only after the conclusion of large-scale conflicts, often in connection with compensation claims and legal disputes. There is no stable or sustained scientific interest. This represents a deeply flawed standard. It is a symptom of super-normal science, in which research outcomes assume an inherently distorted, often advocacy-driven character—aimed at calculating maximal damage for a specific client rather than understanding systemic processes.

Will interest in this subject be limited to attempts to hold the Russian Federation, as an evident aggressor, financially accountable through economic compensation? Undoubtedly, such compensation must be scientifically substantiated. But is this the only legitimate foundation for cognitive engagement with the emerging field of war-related environmental impacts?

RESEARCH FINDINGS

1.
Fundamental Understanding of Military Pollution and Its Impact on Nature and Human Populations

Armed conflict has traditionally been studied as a political, military, or humanitarian phenomenon. There have always been clear reasons for this orientation. Who will control a given territory? Whose flag will be raised over the central administrative building? Such questions have dominated strategic and analytical thinking.

Recent examples are directly connected to the war in Ukraine. Russia has occupied parts of Ukrainian territory and, according to its own legal framework, has declared these territories part of the Russian Federation. From the Russian perspective, the decisive factor is the presence of the state flag over regional administrative centers. Nothing else appears to be of primary importance. For this reason, the war has continued from the spring of 2014 to the present.

Environmental degradation and public health impacts have often been treated as secondary consequences—unfortunate but incidental outcomes of violence. This interpretation of war-related environmental damage remains dominant. It is a complex expert issue. How can ecological damage caused by military activity be rigorously quantified, particularly during prolonged wars involving armed forces on both sides? Who fired more? Who caused greater harm to nature?

As time alters the spatial and material traces of warfare, precise attribution of military impacts becomes increasingly difficult. However, it is essential not to conflate (a) cognitive difficulties associated with research and (b) the real environmental transformations resulting from human violence against humans. These are categorically distinct matters.

It must be stated explicitly that *the scientific capacity to investigate this topic is being used only to a very limited extent.* The reasons lie not only—and perhaps not primarily—in external pressure on scientific communities. The activity, selectivity, and choices of the scientific community itself require critical examination.

There are "simple" cases of military pollution. The Vietnam War provides a clear example. The United States military systematically employed chemical agents—not only against the Vietnamese armed forces, but also against civilian populations. This occurred because local populations actively cooperated with resistance forces in defending their territories. At a later stage, chemical agents were deliberately deployed against natural environments in regions that could not be brought under effective control. Given the technological capabilities of the United States, the task was formulated accordingly: to destroy nature itself and render territories uninhabitable *(Olson et al, 2019; Olson, 2024; 2025)*.

This is a "simple" case. Responsibility is unambiguous. An unprecedented spectrum of color-coded chemical agents was employed. The consequences are beyond dispute and extend into an indefinitely distant future.

However, there are more complex and far less obvious cases of military pollution.

There is no doubt that *military pollution has become an organic component of the environments in which large populations now live*. There is likewise no doubt that the result is a sustained impact of this war-generated environment on human health. The long-term consequences of such activity may be tragic. Yet these issues are largely absent from the mental frameworks of those who seek maximal territorial control, as well as from the expert communities that actively cooperate with their states in the implementation of such control.

This leads to a fundamental question: *What constitutes a scientifically adequate understanding of military activity, its impact on nature, and its role in the creation of human habitats that contain destructive long-term consequences for human populations?* Is what we are observing today merely an episode, or does it represent a structural element of the future world in which people will live?

The considerations outlined above suggest that military pollution should not be interpreted solely as a sequence of isolated events linked to individual conflicts. Rather, they

point toward the existence of *recurrent and structurally embedded processes*, in which warfare periodically re-enters the same territories, leaving cumulative environmental and health impacts.

This observation raises a broader question that remains largely absent from contemporary scientific debate: whether war-related environmental degradation follows identifiable long-term rhythms, and whether certain regions are repeatedly subjected to cycles of destruction, contamination, partial recovery, and renewed military impact. If such rhythmicity exists, it challenges conventional approaches that analyze conflicts as discrete episodes with clearly defined beginnings and ends.

At this point, the discussion must move beyond the documentation of individual cases toward an examination of *temporal patterns and cumulative effects*. The issue is no longer limited to what war does to the environment at a given moment, but how repeated military interventions transform landscapes, ecosystems, and human health across generations.

This journal explicitly invites experts from different scientific traditions to engage with this problem. Is the apparent recurrence of military pollution a historically contingent phenomenon, or does it reflect a deeper structural feature of contemporary human societies? Are current analytical frameworks capable of recognizing such long-term processes, or do they fragment them into disconnected disciplinary observations? And, ultimately, should what we observe today be understood as an exception—or as a component of the future world in which human populations will be forced to live?

These questions form the basis for the following section, which addresses the *rhythmic nature of war-related environmental degradation* and its implications for scientific research and public health.

2.
The Rhythmicity of War and Peace as an Object of Scientific Inquiry

This part of article presents an example of a fundamental failure in the scientific understanding of military pollution.

It is not difficult to observe a clearly defined long-term *rhythmicity of military pollution*. Certain territories are periodically subjected to nearly total military destruction.

Ukraine provides a striking example. Over the past century, its territory has experienced three prolonged and exceptionally destructive processes linked to military activity. What is crucial is that *each of these periods was associated with multiple ecological consequences.* These consequences differed in form, but they were always present.

The Crimean Peninsula

1917–1924. A bloody civil war followed by the period known as the “Red Terror.” Massive population movements occurred across a territory of approximately 27,000 square kilometers. Settlement patterns and population composition were dramatically altered. This period ended with a state-organized famine. The previously established standards of territorial development were radically disrupted. From an ecological perspective, this constituted a catastrophe.

Less than twenty years passed before the next disaster.

1941–1944. Another devastating war. Two major cities—Sevastopol and Kerch—were nearly destroyed. Hundreds of rural settlements were left without their populations. Settlement systems were again radically transformed. In 1944, Crimea lost its entire non-Slavic population, which had inhabited the peninsula for centuries, through mass deportation. This was followed by large-scale migration from Russian territories. As a result, several hundred rural settlements ceased to exist. New economic specializations

were introduced, leading to severe water supply problems. The development of Crimea proceeded in an entirely new direction. It was transformed into an "ordinary province of the USSR," and these new specializations were defined accordingly.

2014–present. By now Crimea did not experience mass military destruction. However, Russian control of the peninsula has triggered severe ecological changes. Ukraine ceased freshwater supply via the North Crimean Canal. As a result, intensive groundwater exploitation began, inevitably leading toward a freshwater catastrophe. Large-scale migration from Russia increased population pressure beyond the peninsula's water capacity, while Crimea continues to be promoted as a "tourist paradise." The outcome is unquestionably an ecological disaster.

There is not a single second of doubt that Crimea is generating a scenario comparable to that of contemporary Iran and its capital, Tehran—that is, the entire peninsula will face catastrophic freshwater scarcity. This will occur "unexpectedly." Yet this "unexpectedness" has been approaching for nearly a century. Periods of intense warfare and mass violence have played a decisive role in shaping this trajectory.

Perhaps the most striking aspect of this "unexpectedness" is that those who identify themselves as "scientists" and "experts" express surprise along with the rest of society. What is the value of scientific knowledge produced by normal and super-normal science if experts respond to new realities with childlike astonishment? What purpose does expertise serve under such conditions?

Result. Three distinct periods of mass destruction, population replacement, and ecological degradation occurred. Local populations were displaced or deported. Landscapes historically adapted to regional ecological conditions underwent depopulation, followed by redevelopment according to new standards, leading rapidly to environmental decline. In a short historical perspective, Crimea will lose access to freshwater. This outcome has been shaped, to a significant extent, by a prolonged history of struggle for control over the region.

The Donbas Region

1917–1922. Civil war resulted in mass population change and destruction. The industrial settlement system of the Russian Empire collapsed under unprecedented violence. Much of what had previously been created for the industrial and agricultural development of the region was deliberately destroyed. This period ended with the Red Terror. The local population and the most highly qualified specialists working in the region suffered particularly severe losses. It was in this region that Stalinist terror in the USSR effectively began, exemplified by the well-known "Shakhty Trial."

1941–1944. Another devastating war caused massive destruction, migration, and contamination. A well-developed industrial and agricultural region was reduced to ruins. Local populations were almost entirely absent. Extremely intensive military pollution affected both land and water systems. Neither territories nor water bodies were studied, and no detoxification was carried out. The region was repopulated by an almost entirely new population.

2014–present. Ongoing military activity has resulted in further population displacement, extensive contamination of land and water systems, destruction of economic potential, and the intentional dismantling of central place systems (*Christaller, 1932; 1933; 1938; 1941*). Settlement structures are being radically transformed, leading to depopulation. There are strong grounds to suspect the application of Walter Christaller's central place theory in the restructuring of occupied territories, with active proponents within Russia (*Shuper, 1995; Shuper, 1996; Vazhenin, 1997; Dmitriev, 2019; Dmitriev, 2022; Dmitriev et al, 2022; Dmitriev et al, 2023*). This theory was used very extensively during the period of the Third Reich. It constituted an important component of the 'Generalplan Ost.' Walter Christaller himself was a member of the Nazi Party for more than four years." «Work for National Socialist agencies; in 1943, he served as a policy officer at the Planning Office

of the Main Staff of the Reich Commissioner for the Strengthening of German Ethnic Identity (a position held since 1940)» (*Walter Christaller*).

It is commonly assumed that this involvement was motivated by purely career considerations. However, there is little doubt that Christaller's theory of "ideal central places" was explicitly conceived for implementation in territories cleared of populations deemed "inferior Slavs" (Poles and Ukrainians) (*Generalplan Ost Rechtliche, 1942; Fernández de Betoño, 2020; Barnes, 2015; Kay, 2006; Rössler, 2016*).

In the Russian case, not only the theory but also the practical experience of the Third Reich appears to have been assimilated. The territory of Donbas has been systematically cleared of settlements and population. Widely known images of completely destroyed cities in Donbas correspond precisely to central places as defined by central place theory. A total depopulation of the territory can be documented. The situation with water resources is catastrophic. Water supply was always problematic in the region, but the war has transformed it into a full-scale disaster.

Result. Repeated cycles of military destruction, population replacement, and cumulative contamination from industrial, agricultural, and military sources have occurred. Future "reconstruction" efforts risk ignoring ecological realities in one of the most polluted regions of Europe.

It may be concluded that a *clearly defined human habitat* is being created slowly and steadily: an extremely polluted environment in which military contamination plays a significant, albeit poorly understood, role. This role remains undefined precisely because systematic research into military pollution is consistently avoided. In the USSR, the topic was not investigated for certain reasons. In Ukraine, it is ignored for different reasons. The Russian scientific community may well be studying the environmental condition of Donbas, but its habitual concealment of research results appears to extend to this case as well.

Why does the scientific community fail to recognize and investigate such rhythmic patterns? Why is there no systematic formulation of the problem of *periodic accumulation of military pollution*?

The first explicit articulation of this rhythmicity appeared in 2001, prior to the events of 2014 (*Nikolaenko, 2001, 2003*). The corresponding book has been widely cited—according to Google Scholar, it has received 791 citations. Yet not a single expert has explicitly addressed the described rhythm of creation and destruction. Why is this the case?

The concept of *military ecotones* was among the earliest attempts to address this problem (*Nikolaenko, 2025a; 2024a; 2024b; 2024c*). The response of the scientific community was silence. Research proposals based on this concept were repeatedly rejected. European ecologists "did not understand" the idea. It was dismissed as meaningless.

3.
The Philosophy of War and Its Long-Term Consequences

First, **war must be treated as an environmental process**. This statement should be understood literally rather than metaphorically. Military activity mobilizes enormous quantities of energy and matter: explosives, fuels, metals, chemical compounds, radioactive materials, sediments, pathogens, and waste. These material flows alter ecosystems in ways comparable to—and often exceeding—the effects of large-scale industrial disasters.

War is inseparably linked to the human creation of new environments. These environments may be fundamentally hostile to life. They generate multiple long-term consequences whose cumulative effects extend far beyond the temporal boundaries of military operations. The experience of the Vietnam War provides a well-documented example of such processes, yet it is only one among many. Numerous other cases remain far

less visible, largely due to insufficient scientific investigation. It is significant that the scientific community itself persistently avoids systematic study of this domain.

Second, **environmental damage during war is frequently intentional**. Infrastructure essential to ecological stability and human survival—water supply systems, wastewater treatment plants, dams, reservoirs, power stations, agricultural lands, and chemical facilities—has increasingly become a direct target of military action. Their destruction produces cascading ecological and infectious consequences that persist long after hostilities cease.

In this context, the intentions or declarations of those planning military operations are of secondary importance. What matters are the material outcomes of their actions. These actions deliberately generate ecological catastrophes whose effects unfold over decades. Whether such consequences are consciously acknowledged by decision-makers is irrelevant. This entire problem domain remains systematically silenced within the scientific community.

Third, **environmental degradation constitutes a form of violence against civilian populations**. Contaminated water, toxic soils, degraded air quality, disrupted food systems, and collapsing sanitation infrastructures translate directly into disease, disability, forced displacement, and premature mortality. These outcomes are not accidental side effects of war; they are among the mechanisms through which warfare exerts sustained pressure on societies.

The war in Ukraine has produced particularly stark examples of deliberate territorial depopulation. Many actions undertaken by the Russian armed forces have had a single discernible objective: the removal of civilian populations from inhabited territories. Civilian life itself becomes an object of military activity. Attempts to destroy Ukraine's entire energy infrastructure illustrate this logic clearly. Territories in which people had lived for centuries were to be rendered uninhabitable. Among the most striking cases is the Kharkiv region, where the scale and persistence of such practices are especially evident.

Fourth, **long-term destructive processes associated with warfare must be examined as continuous and rhythmic phenomena**. It is insufficient to analyze only the most recent episode of large-scale military impact on the environment. In certain regions, destruction follows a cyclical pattern. Crimea and Donbas provide clear examples. These territories have experienced repeated military conflicts beginning in 2014, continuing to the present, and extending into an uncertain future.

Contemporary science largely fails to investigate processes of this temporal scale. The reason is not an inherent cognitive limitation. Rather, these processes are fragmented into isolated components. A single long-term phenomenon is decomposed into multiple fragments, each studied separately—often with considerable technical sophistication—within distinct scientific disciplines. The integrated, cumulative process itself remains conceptually invisible.

Fifth, **post-war recovery cannot be separated from scientific analysis of war-induced environmental damage**. Reconstruction strategies that ignore contamination, altered hydrology, damaged soils, and long-term health risks do not resolve vulnerability; they reproduce it.

Regrettably, developments in Ukraine appear to be moving in precisely this direction. Corruption within Ukrainian governance structures is widely acknowledged and remains pervasive at all administrative levels. The ongoing war has not halted this process. Post-war reconstruction entails enormous financial flows, and investment projects are already being planned for territories of extreme environmental contamination. Long-term ecological and health consequences are largely disregarded. Financial opportunity predominates, often accompanied by systematic appropriation of resources.

The scientific community also demonstrates interest in this domain primarily for financial reasons. This phenomenon is not limited to Ukraine or to its deeply compromised

academic institutions. It reflects a broader structural tendency within contemporary science.

4.
The Contribution of Super-Normal Science to the Production of a Contaminated Human Environment

There is also bad news. Scientific communities increasingly cooperate with state power in the production of ecocide. The Russian aggression against Ukraine demonstrates that segments of the Russian scientific community actively support aggressive state policy. Responsibility cannot be assigned solely to military actors. Strategic planning of ecocide is carried out within academic institutions, including the Russian Academy of Sciences (*Nikolaenko, 2025b*).

Remarkably, this topic is met with silence—even within Ukraine. The involvement of Russian scientific institutions in the planning and implementation of aggression remains largely unexamined. The prevailing belief that "science cannot behave this way" stands in direct contradiction to empirical reality. This situation is best explained through the concept of *super-normal science*, emerging from the totalitarian scientific culture of the Soviet Union and persisting through post-Soviet transformations.

We are confronted with a *new type of scientific community*. It calmly and confidently cooperates with its state in implementing arbitrarily destructive activities against nature and the civilian population of a state defined as the target of aggression. Such a scientific community asks only a strictly limited range of questions. It displays no concern for the long-term consequences of military activity.

Super-normal scientific communities represent a phenomenon of a qualitatively new kind. Nothing comparable existed in earlier historical periods. Their understanding requires the introduction of new analytical concepts, developed specifically to explain the phenomenon of super-normal science (*Nikolaenko, 2025c*).

Scientific Society in a State of Status Quo (SS-SQ)

A scientific community may, for extended periods, successfully resist scientific novelty. At a certain stage, it categorically ceases to require new knowledge, perceiving no meaning in it. "Everything that could be studied has already been studied." Any novelty becomes a threat, and every effort is made to prevent its realization.

This state of the scientific community is neither accidental nor anecdotal. It emerges naturally through a specific evolutionary trajectory. We define it as a *scientific society in a state of status quo* and denote it as *SS-SQ (Scientific Society in Status Quo).*

The reaction of SS-SQ to scientific novelty is determined not by the cognitive value of that novelty or its methodological rigor in accordance with epistemological standards, but by the degree to which it threatens the stability of SS-SQ. This reaction is therefore systematically irrational. A profound contradiction arises between scientific activity and cognitive activity: scientific practice no longer contains cognitive intent and is instead directed solely toward the reproduction of the dominant paradigm. SS-SQ does not experience this as a problem; it perceives such a condition as entirely normal.

The Implicit Bunker of Normal Science

Existing conceptual frameworks in the sociology and philosophy of science are insufficient to explain the active and effective resistance of scientific communities to scientific innovation. This phenomenon is too stable and multidimensional. There exists extensive empirical evidence of persistent, categorical, and profoundly irrational rejection of scientific novelty by scientific communities themselves.

This resistance is often explained by two arguments:

(a) that a new generation will eventually accept the innovation as normal;
(b) that certain individuals are simply "ahead of their time."

Such explanations are unconvincing. They contribute little to understanding the real dynamics of science. The number and consistency of such cases are too great to be explained by conservatism or individual genius alone. New concepts are required to describe the effectiveness with which scientific communities neutralize scientific novelty.

By the *implicit bunker of normal science*, we mean a contradictory and speculative system of reflexivity that allows representatives of normal science to preserve the status quo, which they regard as an absolute value and ultimate goal. In order to preserve this status quo, representatives of normal science are prepared to engage in any form of intellectual maneuvering within their field. Depending on the political and social context, this reflexive system may include repressive measures against those who attempt to challenge the status quo and advance science.

By *normal science*, we refer to scientific communities, institutions, and dominant knowledge systems that claim scientific legitimacy while effectively "freezing time" within their domain. The current level of scientific development is perceived as final—requiring no correction and offering exhaustive explanations of the object of study. The only thing lacking for the "normal" scientist is funding from the state budget or private investors. Cognitive interest, as such, is considered fully satisfied.

The concept of the implicit bunker of normal science captures a collective mental state of the scientific community that is disconnected from emerging realities and new explanatory demands. It reflects a self-sufficient mentality. Representatives of normal science often declare themselves the highest social value and demand careful treatment, including protection from disruptive scientific novelty. Authors of new scientific ideas are perceived as immoral actors or dilettantes violating accepted norms of scientific conduct.

This concept describes a defensive reaction of the scientific community. The emergence of such a state indicates a profound contradiction between scientific and cognitive activity, wherein the latter effectively ceases to exist. The scientific community continues to reproduce familiar results indefinitely, sustained by the inertia of the dominant paradigm.

To understand the implicit bunker of normal science, it is useful to recall the works of Franz Kafka (*Kafka, 2023*). No matter how much you read, something always remains unclear. His writings depict a profoundly contradictory and surreal world, characterized by unexpected sequences, illogical argumentation, and sharp discrepancies between declared rationality and actual practice. Science claims ultimate rationality, yet normal scientific communities systematically contradict this claim. The implicit bunker of normal science serves as clear evidence of the irrational behavior of large numbers of scientists.

Resistance to the development of science studies arises precisely because its object of analysis may become the worldview system defined here as the implicit bunker of normal science. For this reason, meta-scientific reflection is often reduced to narrow histories of disciplines and a limited set of methodological questions. Normal science requires nothing more. It actively resists any innovation in science studies, as such innovations represent a direct threat.

Cognitive Disability

In order to understand the behavior of super-normal science and its readiness to cooperate uncritically with any initiatives of state power, it is necessary to introduce the concept of *cognitive disability*.

A cognitively disabled individual is a representative of normal or super-normal science who can operate only within the dominant paradigm. No alternative paradigm exists for them. This is not a conscious act of submission or conformity. It is a normal condition. It does not involve inner struggle or choice. Such a choice does not exist by definition.

This condition does not depend solely on state pressure. Even in the absence of direct coercion, all alternative paradigms are perceived—when perceived at all—as misunderstandings. The cognitively disabled individual does not engage in any discussion of the dominant paradigm. They simply do not understand why or how such discussion could occur. Their activity follows a set of prescriptions associated with the dominant paradigm.

This behavior may be compared to that of a military officer who sees no purpose in discussing the military code. It is not their concern. They follow the existing code. When one code is replaced by another, they follow the new one.

A defining feature of cognitive disability is the absence of protest or confusion when the dominant paradigm changes. A new paradigm emerges and immediately becomes the basis for continued activity. The lack of continuity between paradigms causes no concern. Strictly speaking, it is irrelevant to the cognitively disabled individual.

In the contemporary world, a particularly vivid example of cognitive disability can be found among employees of the Russian Academy of Sciences. Representatives of other post-Soviet academies may also be included in this category. What distinguishes the Russian Academy of Sciences is the aggressive nature of the state with which it is associated. This state actively recruits scientific institutions for its objectives. It is for this reason that the numerous failures of the super-normal scientific community of the Russian Federation are so clearly visible.

An alternative example is provided by the National Academy of Sciences of Ukraine. It is linked to a state that does not pursue aggression against its neighbors. As a result, processes unfold at an extremely slow pace and in accordance with scientific standards characteristic of approximately thirty to forty years ago. The outcomes of its activity are therefore less visible. However, in structural terms, it represents the same type of scientific community. Both cases can be unambiguously classified as variants of *super-normal science.*

6.
Innovations of Super-Normal Science and Military Pollution

There is an evident contradiction.

The established image of science presupposes innovation. The scientific community is expected to be dynamic. It is expected to strive for Truth. This image of science is fixed and generally unquestioned. All of these features are assumed to be an obligatory component of scientific activity—a normative *must*. If one does not strive for Truth, one is not considered a scientist. And yet—this is precisely what is absent.

Super-normal science represents an extremely compliant expert community that does not strive toward anything. It is highly passive and, in effect, imitates a cognitive scientific process. This imitation is expressed through the production of “proper” publications in “proper” scientific journals. At the same time, scientometric indicators may reach very high levels. This phenomenon is demonstrated in detail through the example of the Russian scientific school associated with V. Sochava (*Nikolaenko, 2025c*). According to scientometric criteria, this appears to be an exceptionally dynamic community. Indeed, many such journals are indexed in SCOPUS. However, despite steadily increasing scientometric indicators, this scientific school has remained conceptually stationary for no less than thirty years. The explanation is straightforward: the community has learned to manipulate scientometric indicators. This is not particularly difficult.

The super-normal scientific community produces innovations of a strictly limited type. These innovations conform entirely to (a) existing paradigm constraints and (b) the preferences of state authority. This corresponds broadly to what was described in the works of Thomas Kuhn (*Kuhn, 1962*). A crucial addition, however, concerns the vassal-like

relationship of such scientists to political power—an aspect not addressed by Kuhn, as super-normal science did not yet exist in the form observed today.

Within this professional environment, political dissent and resistance to authority are entirely absent. Independent expert opinion does not exist. The notion of expert autonomy is effectively excluded. The super-normal scientific community anticipates the wishes of state power and provides them with scientific justification. This is a community of servile experts whose professional existence is defined by fulfilling the desires of the "Boss." In the Russian case, this dynamic is inseparable from Vladimir Putin and the implementation of the narrative that "Russia is rising from its knees," regardless of the consequences this "rise" entails for others.

Super-normal science performs a purely service-oriented function. The scientist operates analogously to a waiter in a restaurant. The waiter sides with the client and is prepared to fulfill any order. At the same time, the waiter has personal interests: the client should order not a glass of water, but an extremely expensive bottle of French champagne. The total amount of the bill is what matters. It is irrelevant whether the food is healthy or how the visit affects the client's finances. Accordingly, the waiter offers recommendations aligned with this interest.

This is a game. Both the client and the waiter understand that it is a game. It has its own rules, and both parties follow them. A similar configuration characterizes super-normal science in totalitarian societies.

An illustrative example of innovation within super-normal science can be provided. This is a typical service-oriented—indeed, servile—innovation. The client, namely the President of the Russian Federation, ordered a war, and the Russian Academy of Sciences produced a "scientific justification" asserting that war was not only possible, but necessary for Russia. Moreover, the war was presented as simple, victorious, and easy—a brief walk through Ukraine, a new version of Blitzkrieg.

This example is directly connected to Russian geographical science. I am thoroughly familiar with this scientific community, having interacted with many of its representatives over several decades. Throughout my academic career, it has been an object of systematic analysis. Since my postgraduate period (1981–1983), I have personally known many experts who are now regarded as "leading" Russian specialists in geography. I also worked as a professor in Saint Petersburg for two years before returning to South Africa. They are primarily affiliated with the Institute of Geography of the Russian Academy of Sciences and the Faculty of Geography at Moscow State University. These are unquestionably the two most influential scientific institutions in Russia, where "scientific" images of the world—and particularly of the post-Soviet space—are produced.

Beginning around 2008, the Russian geographical scientific community began to actively support Russia's aggressive policies. This was not limited to propaganda narratives such as "Russia is the most beautiful country," although such narratives were and remain widespread. A massive surge of interest in geopolitics followed. Geopolitics, in this context, constitutes a provocative set of generalized concepts—a first step toward the practical implementation of war. The overarching conclusion can be summarized as follows: Russia must regain direct control over lost Soviet territories. For reasons that are difficult to comprehend, the largest state in the world found these territories insufficient.

Russian experts, operating explicitly within the framework of aggressive warfare and the project of creating "USSR 2.0," moved significantly further. A "scientific justification" was developed for Russia's aggressive behavior and for the supposed naturalness of altering existing state borders. This justification focused primarily on the post-Soviet space and was formulated within the framework of the so-called "relativistic concept of political geography." Only the most representative publications are cited here (*Kolosov, 2012; Kolosov et al, 2016; Kolosov, 2017*). Their number is vast, and all were produced at the

highest levels of scientific status in Russia. The authors of these works possess excellent SCOPUS indicators. A large and active scientific community has thus emerged, continuously providing justification for the expansion of Russian state territory from 2008 to the present.

The "relativistic concept of political geography" is remarkable in its own way. It opens the possibility of "permanent war"—effectively, a war of all against all, in which the strongest prevails. Russia is assumed to be the primary beneficiary of this universal conflict. In this respect, the concept bears resemblance to Leon Trotsky's notion of "permanent revolution". According to Moscow-based academic geographers, all state borders in the world become relative. Borders are subject to change—this is not contested, as borders have changed repeatedly throughout history. What is novel is the assertion that borders *must* be changed and that war represents a natural condition. On this basis, the post-Soviet space began to be "reformatted." According to a peculiar internal logic, Russia occupies an exceptional position: its borders may change only in the direction of expansion, whereas the borders of other states may change through territorial reduction.

All of this was "scientifically justified" in the context of the Putin regime's attempts to "restore the USSR." The implementation of this objective required the violation of numerous state borders, and scientific legitimation was indispensable. This legitimation was provided. Prominent figures of Russian science issued expert certificates authorizing territorial expansion.

Pretexts for war against virtually any post-Soviet state could be found with ease. The borders inherited from the USSR changed repeatedly between 1917 and its dissolution and were never properly demarcated. Meaningful delimitation was never undertaken. A clear example is the state border between the Russian Federation and Kazakhstan. The situation is comparable to that of state borders in Africa. In many areas, it is impossible to determine which country one is in. I worked in Africa for seven years and encountered such situations repeatedly. One must travel to the nearest settlement and observe which currency is in use. These are extremely "murky waters," in which almost any pretext for war can be constructed.

This is not a question of "politics." It concerns the long-term environmental consequences of war. War does not begin solely by the will of a dictator. It begins with the collective readiness to develop and justify it. It begins when vast numbers of experts—including national academies of sciences—start working to legitimize war. This is precisely what the Russian geographical scientific community did over many years. A service-oriented scientific function was performed. A fundamentally incorrect image of the post-Soviet space was constructed, according to which the war with Ukraine would last no more than a week. Ukrainians would flee, surrender, and greet the Russian army with flowers in Kyiv and Kharkiv.

The production of incorrect and openly provocative "scientific" images of the post-Soviet space is not the only achievement of Russian science. Another dimension deserves attention.

Geographical education is deeply intertwined with ecology. At Moscow State University, the Faculty of Geography comprises fifteen departments. Of these, ten are directly related to physical geography and ecology, and four are associated with what is termed "social and economic geography"—effectively the analogue of human geography in the Anglo-Saxon tradition. One department may be interpreted as primarily service-oriented: cartography and geoinformatics. This represents a large concentration of privileged experts—a kind of apex of super-normal science.

Over five years of intensive study, students are trained to understand natural systems, their interconnections, and their vulnerability. The catastrophic consequences of violating natural laws are emphasized. The post-Soviet space is replete with such examples,

including the disaster of the Aral Sea and numerous other water management projects implemented in the 1950s–1970s. The Soviet Union left behind an extremely heavy ecological legacy.

The most capable students proceed to postgraduate training, involving an additional three years of intensive research and study, typically culminating in a degree equivalent to a Western PhD. This represents highly qualified scientific training—arguably among the best in the post-Soviet space.

The most talented postgraduate researchers may remain at the Faculty of Geography of Moscow State University. This is considered a great honor and a highly desirable outcome. For those with less talent, personal connections may play a decisive role. Corruption is an organic component of Russian reality, including higher education and science.

Among the large number of individuals holding PhD degrees, only a very small fraction attain the level of "Doctor of Geographical Sciences," comparable to Doctor Habilitatus. This typically occurs after the age of fifty, often later. These individuals constitute the real elite of Russian geographical science—those who make decisions and implement the most complex scientific projects. The approximate ratio of PhDs to Doctors Habilitatus is 75–80 to 1.

Throughout this entire professional trajectory—from the first year of university study to the attainment of the highest academic degree—the importance of ecology is consistently emphasized. Researchers document past failures and ecological disasters, working primarily with their consequences. The Aral Sea remains a recurring example. However, a critical feature must be noted: (a) these experts are never oriented toward anticipating future ecological catastrophes generated by present activities, and (b) they show no interest whatsoever in ecological disasters occurring outside the territory of the Russian Federation—for example, in Ukraine. Distant territories may attract attention, but never post-Soviet territories beyond Russia's borders. This reflects an extraordinarily distorted understanding of both the object of research and nature itself.

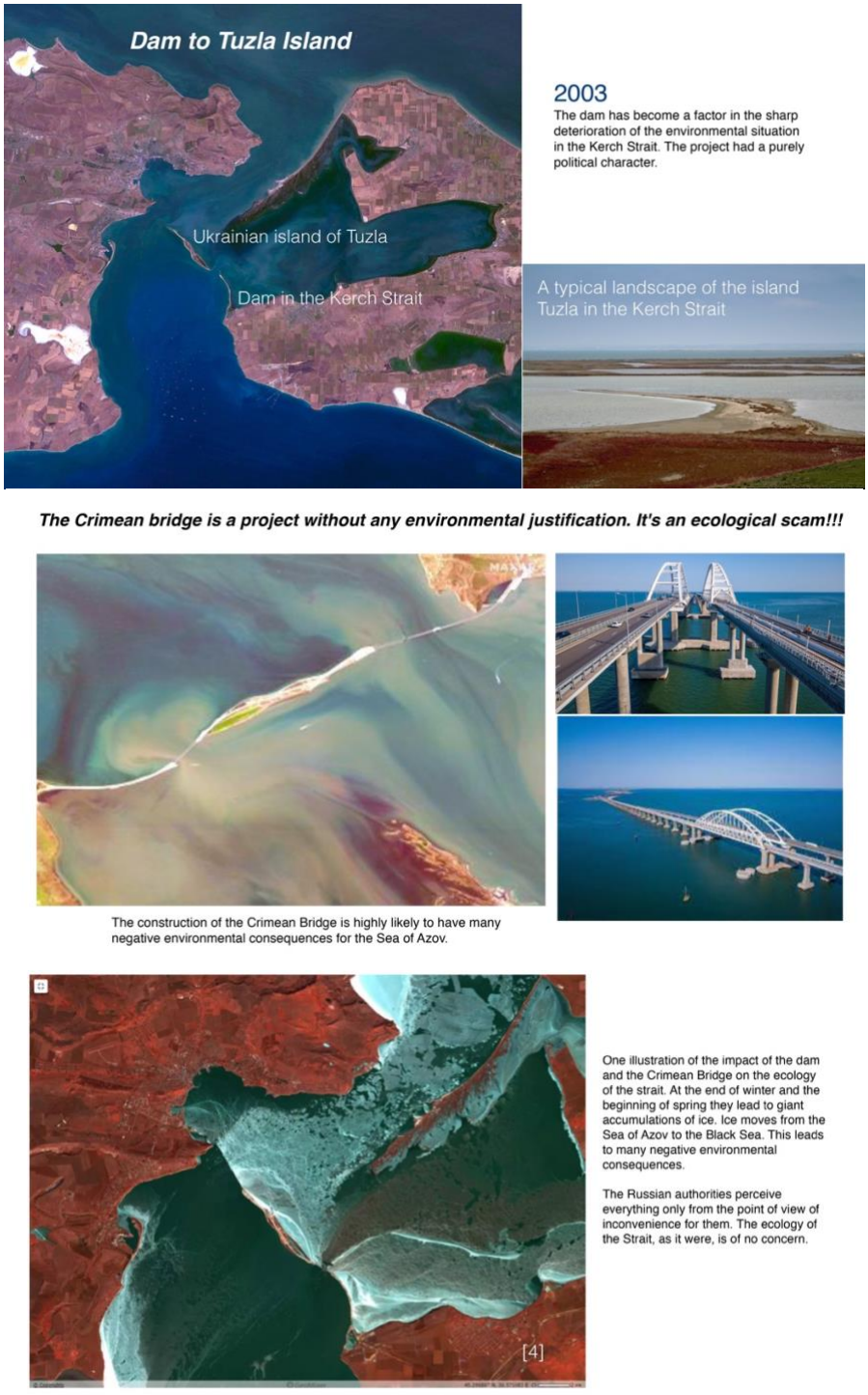
The scientific status of such experts continues to rise steadily. Those who secure a position at Moscow State University enjoy guaranteed careers and scientometric success.

It is precisely this highly successful elite of Russian geographical science that has become involved in the justification of new wars. Many of these experts spent decades researching ecological issues. Yet this research has always focused on the consequences of past errors. It has never been applied to prevent new projects that will generate long-term and often irreversible ecological damage—such as initiating new wars or providing scientific justification for territorial expansion at the expense of Ukraine and Kazakhstan.

How is this possible? How does an individual deeply knowledgeable in ecology and committed to science become an expert who justifies a new war? How does an elite Moscow professor of ecology transform into a war criminal—an expert who designs ecocide on the territory of a neighboring state?

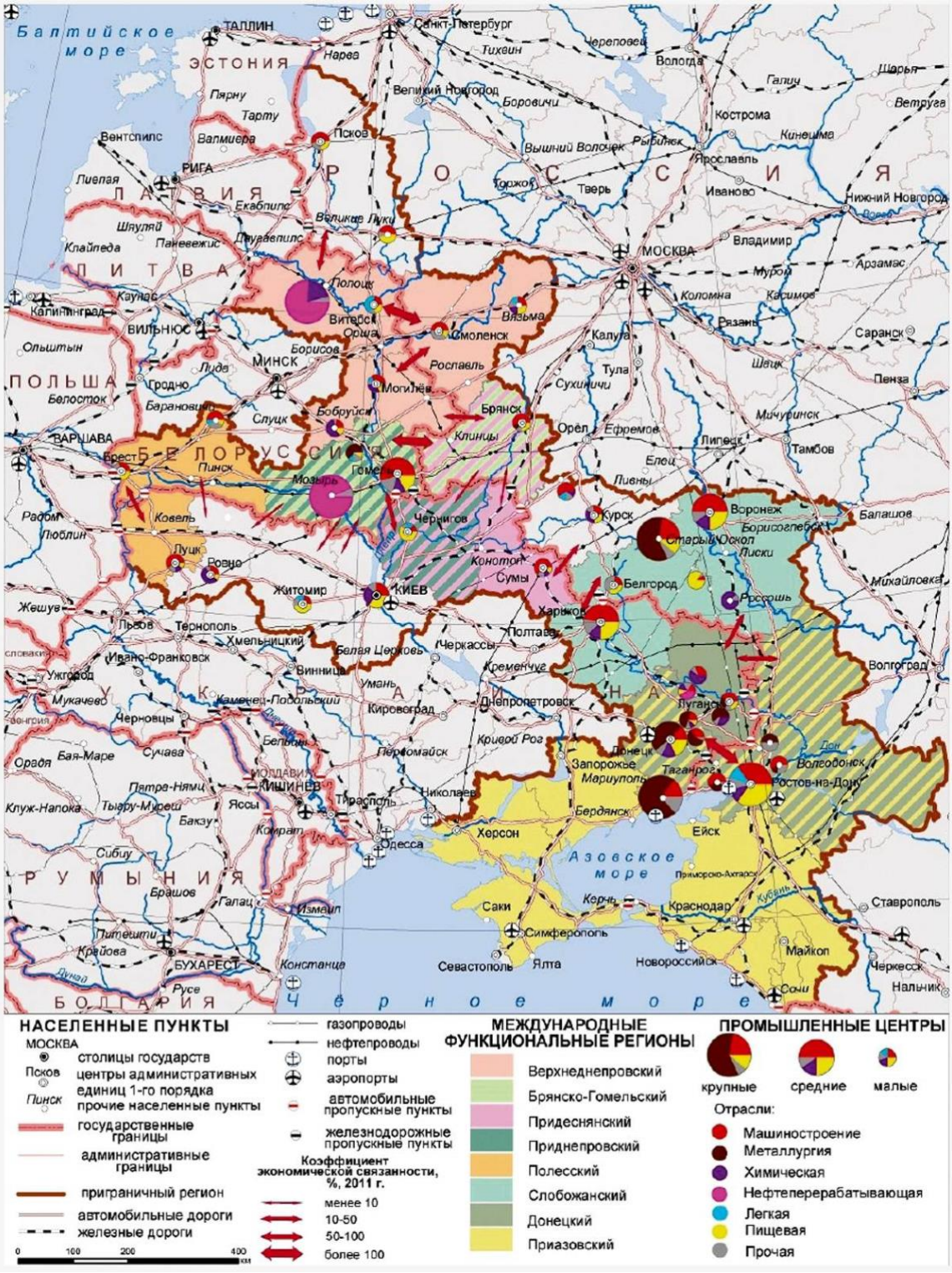
This is not limited to ecocide in Ukraine. Even projects within Russia itself receive full scientific endorsement. A prominent example is the Crimean Bridge. This is an extremely risky project. The risks are not primarily related to military attacks by the Armed Forces of Ukraine, which have occurred repeatedly. The principal risks are ecological in nature. This is not merely a geopolitical adventure; it is an ecological one. Nevertheless, the project received glowing expert assessments from Russian environmental specialists (*Pic. 1-3*).

These are not rhetorical questions. They demand answers. The transformation of the scientific community must be examined in detail. Super-normal science calmly and confidently provides justification for projects that are arbitrarily destructive to the environment—including wars.



Pic. 1-3. The "Crimean Bridge" as an extremely risky project with extensive ecological consequences (*Nikolaenko, 2022*).

A further example illustrates this dynamic. In 2013, a plan of striking cynicism and conceptual simplicity was published, associated with a new level of "integration" of the post-Soviet space. One year later, aggression against Ukraine began. This plan coincided remarkably with the initial version of the full-scale invasion. Putin frequently stated that the war was proceeding "according to plan." It is reasonable to assume that this plan was the one in question (*Pic. 4*).



Pic. 4. The Moscow plan for the "integration" of the post-Soviet space, published in 2013 (*Cross-border cooperation…, 2013*).

This work had numerous authors—more than twenty Moscow professors. Geographers and economists formed the core of this highly prestigious scientific collective. In reality, such projects in Russia involve teams of more than one hundred individuals, each

with a specific specialization. It appears that many rank-and-file participants neither know nor are interested in the project as a whole. One completes one's task, receives payment, and continues with life. These are always additional—and often substantial—financial rewards, frequently unrelated to one's primary employment.

The essence of the project lay in determining how Ukrainian territories were to be managed following their "integration" into the Russian state. It concerned post-war reappropriation and radical transformation of these territories.

The relativistic concept of political geography emerged within the Institute of Geography of the Russian Academy of Sciences and the Faculty of Geography of Moscow State University. Russia's war against Ukraine—and potentially against any other state—constitutes a logical consequence of this theoretical innovation.

This activity provoked no protest within the Russian scientific community. Even in Ukraine, which became the unequivocal victim of Russian aggression, the project was not subjected to analysis. The reasons for this passivity must also be sought in the Soviet totalitarian legacy of what later became the "Ukrainian geographical scientific community".

What is the fundamental flaw of such "scientifically justified" plans? They function as explicit provocations. They construct a categorically incorrect image of reality. This fictitious reality is certified as "scientifically grounded" at the highest level of Russian science. For the authors of these works, only one reality exists—the reality defined by the preferences of the Russian state. According to this logic, aggression against Ukraine is a brief and victorious war lasting no more than a week.

Notably, there is not a single word addressing the environmental consequences of military activity. It appears as though these works were produced not by geographers deeply versed in ecology, but by specialists who do not understand what ecological consequences of warfare entail. To resolve this paradox, it is necessary to analyze how "environmental consequences of military activity" are conceptualized within Russian science.

In 2025, two articles were published in *Pollution and Diseases* demonstrating the internal contradictions of Soviet and post-Soviet phthisiology (*Tymoshenko et al, 2025; Tymoshenko, 2025*). A paradoxical image of tuberculosis and its control was constructed in the USSR and fully preserved in the post-Soviet space. Nothing comparable exists in global scientific practice. Yet this peculiar model dominates contemporary post-Soviet contexts.

A similarly paradoxical understanding can be observed with respect to environmental problems. This phenomenon is specifically associated with the Russian scientific community.

The war that began on 24 February 2022 was not solely Putin's initiative. It was extensively prepared and scientifically legitimized. The Russian expert community moved toward this war over many years. What matters now is the catastrophic nature of expert activity conducted under the standards of super-normal science. The ecological consequences of the war in Ukraine are not solely the responsibility of the Russian military and political leadership. They are directly linked to the service-oriented function of Russian science, which for many years produced fundamentally distorted images of the post-Soviet space. The Russian scientific community is thus an accomplice to war crimes, including their extensive environmental consequences.

The case of *Walter Christaller* illustrates a broader structural problem that extends beyond its specific historical context (*Christaller, 1932; 1933; 1938; 1941*). It is not the individual biography of a scholar that is analytically decisive, but the configuration of relations between expert knowledge and state power in moments of large-scale political transformation.

In Nazi Germany, expert communities—particularly geographers, planners, demographers, and economists—were not marginal auxiliaries to political decision-making. They constituted an essential component of state governance. Their role was to translate ideological objectives into operational spatial, demographic, and administrative models. Within this framework, scientific knowledge did not merely ***legitimize*** political action retrospectively; it actively ***produced*** the conceptual infrastructure through which state violence could be planned and implemented.

A structurally comparable configuration can be observed in certain post-Soviet expert communities, although under fundamentally different historical, ideological, and institutional conditions. Here, too, expertise is increasingly oriented not toward critical inquiry or anticipatory analysis of long-term consequences, but toward the servicing of state-defined objectives. The decisive similarity lies not in political ideology, but in the ***functional transformation of expertise***.

In both cases, expert communities operate within a regime in which:

- *The demand for expertise is defined externally*, by the state or by state-affiliated institutions.
- *Scientific success is measured primarily by institutional recognition*, funding access, and formal indicators of productivity, rather than by cognitive novelty or ethical reflexivity.
- ***Long-term consequences***, particularly ecological and humanitarian, are systematically excluded from the core analytical framework, either as "secondary effects" or as matters beyond the expert's formal responsibility.

Crucially, this configuration does not require explicit coercion. In neither historical context does the expert necessarily act under immediate threat. Instead, participation is normalized through career incentives, institutional stability, and the internalization of state priorities as professionally legitimate problems. *Expertise becomes a service function, while the boundary between analysis and implementation dissolves.*

The absence of direct analogy should not obscure the presence of structural continuity. The central issue is not whether *post-Soviet expert communities replicate the ideological content of earlier totalitarian systems, but whether they reproduce a similar* ***epistemic posture****: one in which the expert refrains from questioning the premises of the task and limits responsibility to technical execution.*

From this perspective, the historical case of Christaller does not function as a moral indictment, but as an analytical reference point. It demonstrates how scientifically coherent theories, when embedded in specific institutional arrangements, may become instruments of large-scale environmental and social transformation without ever explicitly violating disciplinary norms. *The danger lies not in overt politicization of science, but in the* ***quiet normalization of its instrumental role****.*

Understanding these mechanisms is essential for contemporary scientific communities, particularly in regions undergoing geopolitical tension or conflict. *The problem is not the existence of expertise as such, but the conditions under which* ***expertise ceases to ask what kind of future it is helping to construct.***

7.
War as a Rhythmic Process of Environmental Transformation

The analysis presented in this article leads to a conclusion that extends beyond individual cases of military destruction or environmental degradation. War emerges not as a sequence of isolated catastrophic events, but as a *rhythmic process of environmental transformation*, repeatedly reshaping the conditions of human habitation.

From a philosophical perspective, war appears as a recurring mechanism through which societies reorganize space, population, and resources. This mechanism operates through cycles of destruction, partial recovery, and renewed violence. Environmental contamination, degradation of water systems, and long-term health consequences accumulate across these cycles, forming layered and persistent landscapes of risk. What is destroyed is not simply infrastructure or territory, but the ecological and sanitary foundations of human life.

The rhythm of war is neither accidental nor random. It manifests with particular intensity in specific regions, which repeatedly become arenas of military activity. Crimea and Donbas exemplify such territories. Over the course of a century, they have undergone successive waves of violence, population displacement, environmental degradation, and reconfiguration of settlement systems. Each cycle introduces new forms of contamination and vulnerability, while erasing or ignoring the consequences of previous ones.

This rhythmicity challenges prevailing scientific models that conceptualize war as a temporary disruption followed by recovery. Instead, it suggests that warfare functions as a *structuring force*, generating environments in which destruction becomes normalized and future degradation is preconditioned. Reconstruction, when detached from a comprehensive understanding of cumulative environmental damage, becomes a continuation of this rhythm rather than its interruption.

The role of science within this process is deeply problematic. Scientific communities, particularly those embedded within state structures, often contribute—directly or indirectly—to the reproduction of war-induced environments. By fragmenting long-term processes into narrowly defined research topics, science renders the rhythm of destruction analytically invisible. In doing so, it transforms war-related environmental damage into a series of disconnected technical problems, rather than recognizing it as a coherent and persistent phenomenon.

The philosophy of war presented here does not portray conflict as an anomaly or a deviation from normal social development. On the contrary, war appears as one of the mechanisms through which contemporary human societies produce and reproduce their environments. The resulting habitats—highly contaminated, ecologically unstable, and hostile to human health—are not unintended byproducts, but foreseeable outcomes of repeated military interventions.

This observation leads to a disturbing but unavoidable question: *Is the world that is currently being formed through these rhythmic processes of destruction the future environment of Homo sapiens*? If so, scientific inquiry cannot remain confined to post hoc assessments or damage calculations. It must confront the structural nature of war as an environmental process and examine its long-term implications for human survival, health, and dignity.

The task of science, under such conditions, is not to provide reassurance, nor to offer simplified narratives of recovery. It is to observe, analyze, and name the processes that are unfolding—even when doing so reveals uncomfortable truths about the role of science itself. Recognizing the rhythm of war and environmental destruction is a necessary step toward understanding the kind of world that is being created, and the responsibilities that accompany this knowledge.

CONCLUSIONS AND DIRECTION FOR DISCUSSION

1. War should not be understood solely as a humanitarian, political, or economic catastrophe. War has a distinct and traceable ecological expression. It has become an integral component in the formation of human habitats. Territories subjected to military

activity become increasingly contaminated, often with long-term consequences for the populations that continue to live there.

2. One of the most catastrophic dimensions of warfare concerns water resources. This is due to the fact that aquatic environments represent the most dynamic component of natural systems. They respond to military activity rapidly and across multiple pathways. The spectrum of impacts is broad, ranging from direct physical destruction to chemical contamination and hydrological disruption.
3. Military activity can result in dramatic degradation of freshwater systems. The war in Ukraine provides striking examples. Decisions framed in terms of which national flag will fly over an administrative building in a given settlement often translate, in practice, into the destruction of freshwater systems. Such destruction renders the subsequent use of affected territories highly problematic and, in some cases, fundamentally unsustainable.
4. Deliberate depopulation of territories may be considered one of the primary objectives of contemporary warfare. Clear examples are visible in the ongoing war in Ukraine. What occurs is not only intentional depopulation, but also the deliberate destruction of previously established settlement systems. As a working hypothesis, it can be suggested that the Russian Federation's strategy is grounded in Walter Christaller's central place theory. Verification this hypothesis requires systematic investigation of the transformation of central place systems in Donbas from 2014 to the present.
5. Rigorous scientific investigation of armed conflicts and their ecological consequences represents a highly complex research challenge. Numerous questions remain unresolved or poorly formulated. Systematic discussion of these issues is severely constrained by two factors: (a) such research frequently conflicts with the interests of states; (b) it attracts limited interest from the scientific community, which tends to engage actively only when substantial financial incentives are guaranteed. The complexity of studying war-related environmental impacts is consistently underestimated.
6. For certain regions, it is possible to identify a long-term rhythmicity of war and peace, accompanied by periodic and catastrophic military contamination. Additional ecological consequences may also occur. The natural foundations of human habitation in such regions deteriorate dramatically. This inevitably produces public health consequences, yet the topic remains largely unexamined. Research is hindered by the fact that these processes are long-term and integrative. Within narrowly specialized scientific frameworks, they are fragmented into isolated components. Contemporary science largely fails to recognize such cumulative processes.
7. Contemporary Russian science exhibits a paradoxical conception of ecology. On the one hand, there is a reverent attitude toward nature and an endless production of studies addressing the ecological consequences of Soviet-era projects. On the other hand, there is active participation in projects that will generate severe and long-term environmental damage in the future—including projects linked to aggressive wars in the post-Soviet space. Participation in ecocide on the territory of Ukraine coexists organically with meticulous protection of nature in Moscow and the Moscow region. This phenomenon clearly requires detailed and systematic investigation.
8. We are confronted with what may be described as a super-normal scientific community. Post-Soviet states provide particularly vivid examples of this phenomenon, emerging from the transformation of the Soviet scientific system. A defining feature of such communities is the calm and confident cooperation of scientists with state authorities in the implementation of ecocide and the generation of humanitarian catastrophes. The most striking examples are provided by the scientific community of the Russian Federation. The Russian Academy of Sciences acts as a participant in the implementation of ecocide and humanitarian disasters in Ukraine.

9. Modern war constitutes a cognitive challenge. It has changed dramatically. It can no longer be explained solely through the pathological characteristics of individual dictators, random contingencies, or other ostensibly accidental causes. Contemporary warfare is part of the process of constructing a new human habitat—one in which the consequences of military contamination play a decisive role. The scientific community actively participates in the creation of this habitat. It functions as an unavoidable and loyal accomplice to the military initiatives of its state.
10. The long-term consequences of creating and inhabiting such an environment will be profoundly negative. The present discussion seeks to examine these ongoing processes and to confront the role of science within them.

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[2] ***Ostaufbau*** (*development*, *reconstruction*, *colonization*).

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About the Author

PhD, Doctor Habilitatus**.** Prague, Czech Republic.
Editor-in-Chief of the journal "Pollution and Diseases" https://pollution-diseases.org
ORCID ID: https://orcid.org/0009-0001-4173-6669
Google Scholar: https://scholar.google.com/citations?hl=en&user=rsQ1ldwAAAAJ
RG: https://www.researchgate.net/profile/Dmitry-Nikolaenko/research
E-mail: euukraine@icloud.com