

**U W**

**E C**

**Ukraine War  
Environmental  
Consequences  
Work Group**

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*Dear Friends!*

**I**t has already been a year since UWEC Work Group began analyzing the environmental consequences of Russia's invasion of Ukraine.

During that time we have developed an important center of resources, websites, and organizations that collect data and perform analyses. Some of these share publicly available data in the context of the ongoing war. Others monitor the information space.

We are confident that the information we have assembled will be useful for a wide circle of readers and analysts and we want for each of you to have the opportunity to independently gain an understanding of the invasion's environmental consequences. We are making this information freely available and we will update it over time. We welcome your participation and support in this work!:

- [List of information centers and monitoring tools](#)

One key issue stemming from the invasion is chemical contamination of soil, the consequences of which will haunt Ukraine for many years to come. Although a full-fledged study of this problem cannot be completed during the ongoing full-scale invasion, efforts are already getting underway. We analyzed a report prepared by [EcoAction experts](#) and note that soil pollution not only deals a catastrophic blow to Ukraine's food security, but also contributes to desertification processes.

- [Soil metamorphosis: Ukrainian study of war impacts on soils](#)

It is our goal to discover the widest possible range of information about the invasion's consequences. Ukraine is not the only country to suffer; the entire region is experiencing this war. It is extremely challenging, for example, to implement conservation and environmental projects fundamentally important to the sustainable development of neighboring countries.

Moldova is no exception. Director of Eco-Tiras International Association of River Keepers Ilya Trombitskii discusses the environmental challenges facing the transnational Dniester River and how the war's impacts influence the choice of possible solutions.

- [Dniester River - Evolution of transboundary river basin management in the post-Soviet space](#)

The war destroys civil society in Russia as well. Bellona, Greenpeace, and Worldwide Fund for Nature have all been recognized as "foreign agents" or "undesirable". In the short term, it is difficult to imagine the consequences of those decisions.

UWEC Work Group supports all environmental activists facing persecution by authoritarian regimes, no matter where they reside or their nationality. Without civil



*society activists, we can neither protect nature nor fence ourselves off from environmental consequences.*

- **[Bellona: Undesirable openness and the sanctions war](#)**

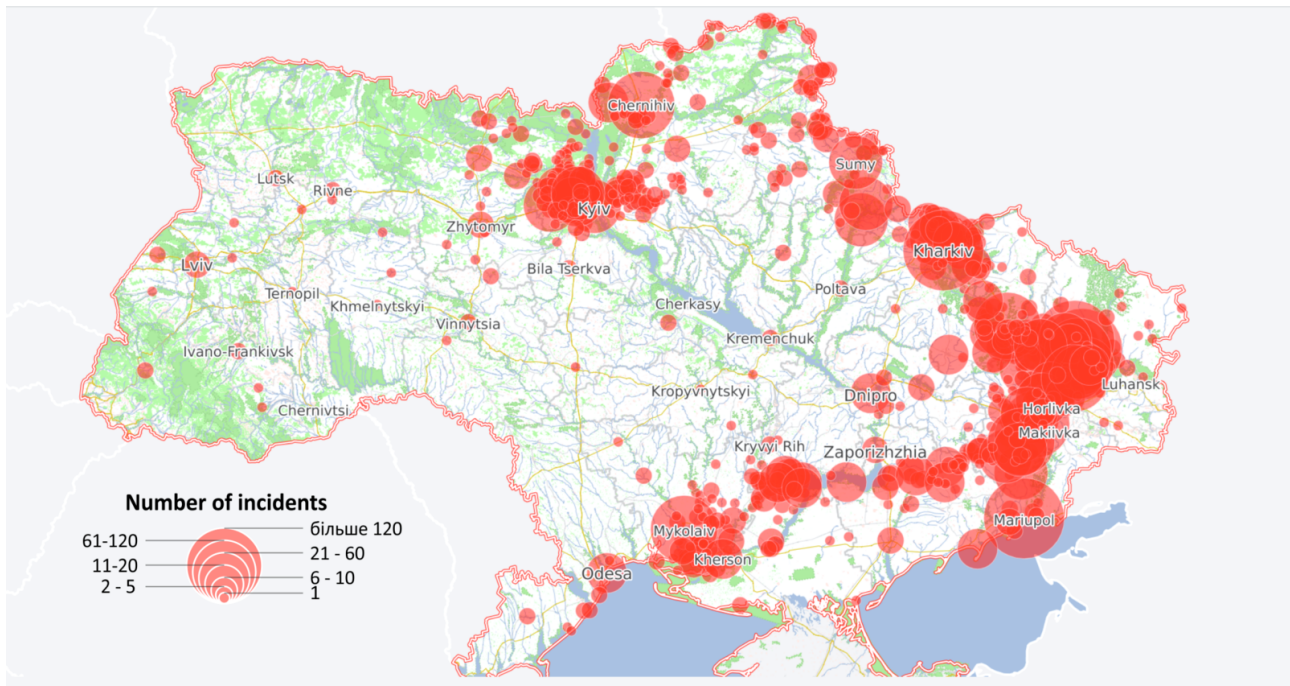


We continue to track the war's environmental consequences on our [website](#) and on our social media ([Twitter](#) and [Facebook](#)). Join the conversation!

*Wishing you strength and peace!*

*Aleksei Ovchinnikov*

*Editor, UWEC Work Group*



# List of Information Centers and Monitoring Tools

*Environmental damage is incalculable, but still must be documented. We have compiled a publicly available metadatabase of environmental information sources for use in times of war. The “List of Information Centers and Monitoring Tools” includes links to monitoring tools, databases, and knowledge bases accumulating information directly relevant to the war’s environmental consequences. The list includes data collection efforts with the following focus: 1) current information on environmental aspects of the war, 2) sources of essential environmental data relevant in times of war and peace, 3) projects monitoring war damage to people and recovery efforts, 4) key relevant sources about non-environmental aspects of war, 5) older robust data collections directly relevant to the subject. As of May 2023 the list includes more than 50 datasets. The UWEC Work Group will add new items as it becomes aware of their existence. We collected sources of information [in one table](#)*

Some say this war is the most widely discussed war ever in terms of its environmental dimensions and unprecedented efforts to measure damage.

Others lament that damage to living nature – species, ecosystems, and ecosystem services – has not received

proper attention and evades assessment, because typical crisis management and humanitarian action approaches deal with impacts to people and human-made structures.

At the same time, many experts agree that most near-battlefield environmental impacts are extremely difficult to



calculate, due to limited access, lack of technology, and lack of established protocols. The data we gather is less precise and less reliable than is needed for use in decision-making.

Finally, people most often ask where they can access information on wartime environmental impacts beyond the impressive but rather limited collection of UWEC articles on all of the environmental aspects of this war.

As a specialized project dealing with the Ukraine war's environmental consequences worldwide, the UWEC Work Group often has to ask and answer such questions. These questions require comprehensive answers, and we are eager to share this database of some of the largest depositories of knowledge on damage caused by this war and information on specific solutions and approaches to remediation.

Following is a brief introduction to this list of information collection centers and tools related to environmentally-significant dimensions of Russia's aggression in Ukraine.

In the "List of Information Centers and Monitoring Tools", we distinguish between the following groups of sources, according to their scope:

### **1. Current information on environmental aspects of the war.**

In this most relevant category we included the ongoing, focused efforts of a number of entities collecting and

analyzing information on this war's environmental dimensions. Examples include:

- "EcoZagroza" – Official resource of Ukraine's Ministry of Environmental Protection and Natural Resources, which includes a dashboard and map registering different types of environmental damage. The Ministry also issues weekly digests.
- "Ukraine Conflict Environmental Briefings" – Periodic publications by ZOI Environmental Network and CEOBs. These environmental briefings assess nuclear sites, water, industry, fossil fuel facilities, and the coastal and marine environment. Both organizations also have other reports devoted to the subject.
- "Ecorubrika" – Collection of articles on environmental issues in times of war regularly published in a dedicated section by Rubrika media portal, which has a special focus on wartime grassroots problem-solving and "how to" guidance (e.g. What to do if a dam is breached on Dnipro River).

The majority of list entries are devoted to problems and impacts occurring inside the territory of Ukraine. However Dixi Group and the Center for Research on Energy and Clean Air (CREA) have



information resources devoted to Russia's fossil fuel industry and exports, while the NGO Ecodefense maintains a Russian-language website monitoring media reports on sanctions and their environmental consequences.

2. To date, the second category includes **only a handful of sources of essential environmental data** useful both in times of war and peace. This category just scratches the surface and could potentially expand dramatically as war-time monitoring often requires many different types of generic environmental data. We have listed specialized websites reporting fires, air-quality, and radiation measurements, as well as the Ukraine State Environmental Inspectorate website. That agency documents violations of environmental law and provides online forms for reporting such violations. We have also included resources shared by Ukrainian Nature Conservation Group, Green Portal of Belarus and other NGOs with contemporary sources covering important environmental issues in the warring states.
3. The third category are projects on **monitoring of war damage to people and recovery efforts**, including assessments of environmental impacts. Examples include:

- Ukraine War Map by Bellingcat – an open-source general “war incident” location map managed by volunteers. Specific incidents may be studied by time interval and several other OSINT-based tools.
  - Recovery Map, by Kyiv School of Economics and partners, contains information about all civilian infrastructure objects restored, destroyed, or partially or completely damaged as a result of Russia's invasion of Ukraine with a goal of facilitating reconstruction.
  - Russia Will Pay – a sister project by Kyiv School of Economics and partners that focuses on assessment of monetary damage to Ukraine's physical infrastructure as a result of the war and calculations of the financial value of these damages. (See March 2023 report on cumulative damage.)
  - Several sources, including the Ukrainian Ministry of Culture, UNESCO, and Yale University, that document damaged cultural monuments and institutions.
4. Another category is a small collection of **highly specialized “other” sources**, which includes databases on refugees, foreign aid for Ukraine recovery, urban planning initiatives for revival of cities, etc. These sources, while not



directly relevant to environmental impact, still contain potentially important data and methodologies (e.g. database on reprocessing of building materials in destroyed cities).

5. The last category are websites where **data collection has likely been discontinued**. Some of those, such as the OSCE studies, document environmental issues related to the 2014 Russian invasion, and others provide snapshots of the radiological situation in 2022. The OCHA's Ukraine Environment Working Group platform plays a special role, reflecting UN body efforts to coordinate environmental assessment and assistance activities and integrate those efforts with the wider humanitarian action agenda from June-October 2022. Among other useful data it contains an initial list of "maps and databases", a source that we used as the starting point

for this meta-database.

We make no judgments on the quality or completeness of data presented in the sources listed here, nor do we bear any responsibility for its accuracy or the political correctness of this information. Collecting and presenting environmental data about the war is a mind-boggling task. Making sense of the data is equally challenging. We wish you good luck and eagerly request your feedback. Please send any questions, suggestions, and/or additional entries to UWEC Work Group (please write to [editor@uwecworkgroup.info](mailto:editor@uwecworkgroup.info)). In publishing this List (and collecting reader feedback), we are developing a **Resources** section on the UWEC Work Group website in order to share references to data depositories, research results, monitoring tools, campaigns and publications created by NGOs, and other projects related to environmental consequences of the war. •

*Main image source:*

[Zoi Environment Network](#)



# Soil metamorphosis: Ukrainian study of war impacts on soils

by Valeria Kolodezhna

Translated by Nick Müller & Jennifer Castner

**C**ontaminated Ukrainian soils are now estimated in millions of hectares. The figure is imprecise, and assessment of their condition is incomplete. However, today, even while the war is ongoing, crop production [represents](#) 30% of the country's GDP. Researchers are studying post-military action soil conditions in Ukraine as urgently as possible for economic reasons, but only environmental considerations make it possible to weigh and rationally choose a plan for further actions. In this article, we consider the [results](#) of a study presented

by the Ecodia Center for Environmental Initiatives on the impact of hostilities on soils in individual Ukrainian communities. Ecodia brings together experts and activists to influence environmental conservation decision-making.

Safety regulations shape soil scientists' work in wartime. Today, roughly [40% of Ukraine's territory](#) (which is larger than the UK) is covered in minefields. On average, it [takes](#) one day to clear one hectare of mines. Therefore, scientists rely now more than ever on geographic





Figure. 1. Troop maneuvers leave clear, visible traces on satellite images, Kharkiv region.

Source: [Maxar Technology](#).

information technology: satellite imagery and their analysis.

The extent of the destruction caused by shelling from Grad rocket launchers (actively used by the Russian armed forces) is dramatically greater than the impact of military fortifications. Grads can [blanket](#) an area of 8–9 hectares in just 20 seconds. Nevertheless, such built factors must also be taken into account in the analysis, as they too directly affect the structure and thus the fertility of soils.

## What do troop maneuvers and heavy equipment mean for soil?

As shown in Figure 1, destruction of soil structure can be visible to the naked eye, occurring in the form of soil compaction.

Soil is a rather well-organized ecosystem that can be described as hierarchical: genetic horizons (layers) of soil, usually lying horizontally, correspond to the date of their formation. For example, T-64 tanks (which the Russian military actively uses in its war against Ukraine) weigh almost fifty metric tons (38-45.5 tons) each. Under the pressure of such weight, normal connections between soil particles are lost, and structure along with hierarchy is destroyed.

Soil compaction [limits](#) the ability of plants to adapt to climate change, arid conditions, and insufficient moisture. These influences become really dangerous only in the case of repeated passage by heavy tracked vehicles along well-trodden paths. The problem



is especially acute in high humidity environments.

On the basis of [data monitoring](#) of the ground compaction caused by M1A1 Abrams battle tanks in Kansas, compacted Ukrainian soils could also potentially recover within a few years (if left dormant).

## Large fires and their effects on soils

The effects of fire caused by military combat are visible in the Chernobyl exclusion zone. Since 24 February 2022, fires have swept through Chernobyl's forests, burning an area of roughly 22,000 hectares. This analysis is [provided](#) by Ukrainian Nature Conservation Group and is based on [European Forest Fire Information System](#) (EFFIS) data.

What do such fires mean for soil? Fire usually depletes and harms necessary water infiltration from deep within subsoil horizons. Humus content in a key area of Kyiv Oblast (within the Chernobyl exclusion zone) [decreased threefold](#) as compared to the pre-war period.

## Effects on soils from shelling

On a separate note, analyzing soil disturbances wreaked by explosions is worthwhile work. Usually it is visible to the naked eye: craters from multiple launch rocket system (MLRS) shelling near Izyum in Kharkiv Oblast have been seen around

the entire world. In a [June 2022 article](#), UWEC Work Group experts assessed the approximate density of destruction of a single sq km of land by ammunition.

Munitions debris, explosive components, and reaction byproducts all mixed with soil at the bottom of the crater, and other debris scatters the area. Chemical contamination of the soil was documented within a five-meter radius of craters (created by MLRS munitions), and mechanical parts were flung up to (only fragments where found) 120 meters distant.

The first phase of the study determined the time frame for military operations and site identification, in other words, damage mapping. Hostilities were tracked using data from the [Armed Conflict Location & Event Data Project](#), a resource that enabled determination of the study's time period. Researchers identified affected areas during this phase, with an additional step to classify areas by factors and types of impact.

Based on an analysis of crater density and munitions characteristics, Ukrainian soil scientists conducted a comprehensive assessment of the extent of soil damage in two pilot communities: Vilhivska in the Kharkiv region and Sartanska in the Donetsk region. Fires and shelling are perhaps the largest damage factors among those identified.

In most of the affected areas, fragment litter was the predominant issue, rather than soil structure damage (Fig. 2). Consequently, in some cases, a cleanup

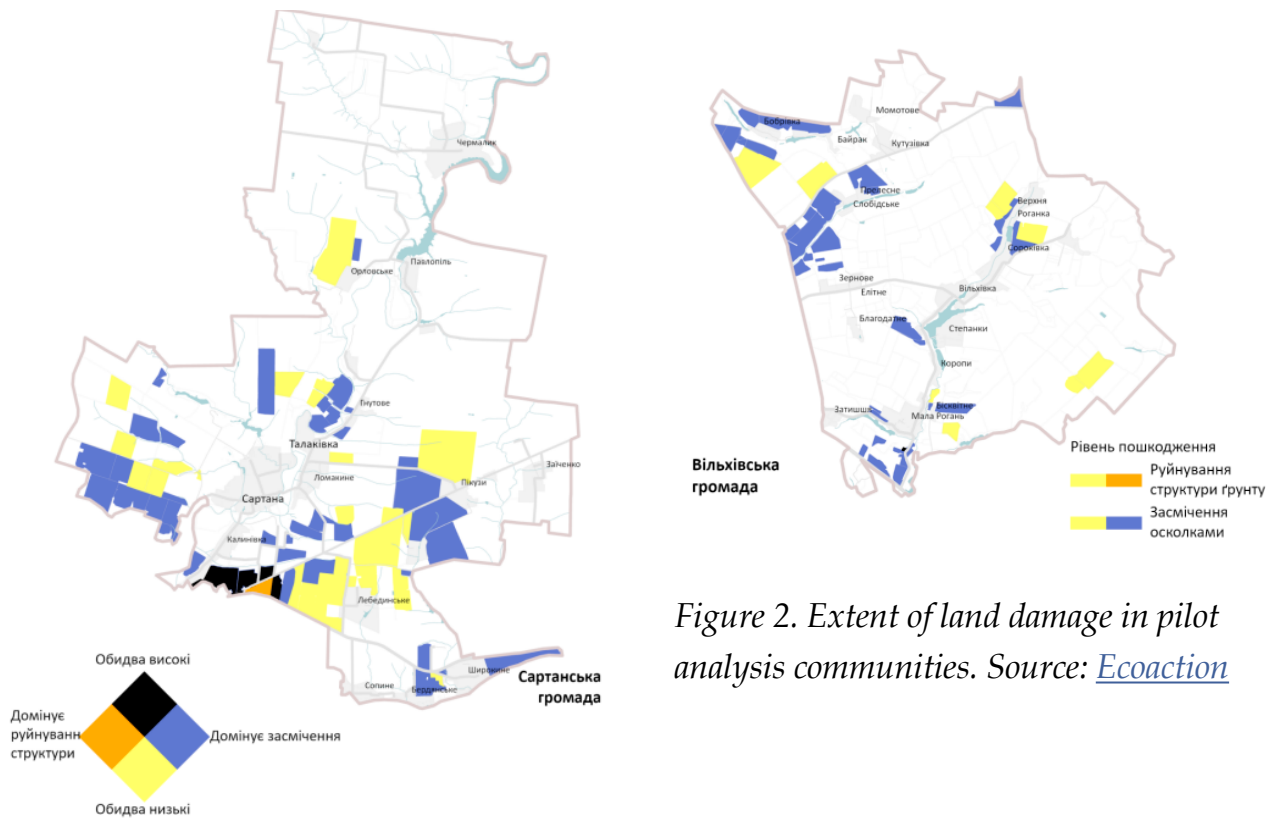


Figure 2. Extent of land damage in pilot analysis communities. Source: [Ecoaction](#)

process is sufficient to restore the area. In areas with increased damage, special cleansing measures are required, and in cases of severe contamination, scientists recommend temporary closure, leaving the site temporarily fallow for a period of self-recovery.

## Remediation: Special cleanup measures for soils

The study's soil scientists recommended a number of remediation technologies.

For areas of moderate damage, the biological cleaning methods – [phytoremediation](#) and [phytoextraction](#) – selected are far from the cheapest, but are relatively natural technologies. They involve on-site cultivation of special plants capable of dissolving or

absorbing pollutants. Subsequently, absorbed heavy metals are removed from the site along with the sorbent plant. The process is similar to the work of activated carbon, a substance used in cases of poisoning.

Various types of plants can be used to remove various heavy metals such as (Pb, Ni, Cr, Zn, etc.) from the soil. Those mentioned in the report include common crops such as sunflower and spring rapeseed. However, it should be noted that subsequent use of such crops in the food industry after completing remediation is strictly prohibited.

## Desertification and the war's role in it

Threats of unexploded ordnance and contamination with heavy metals

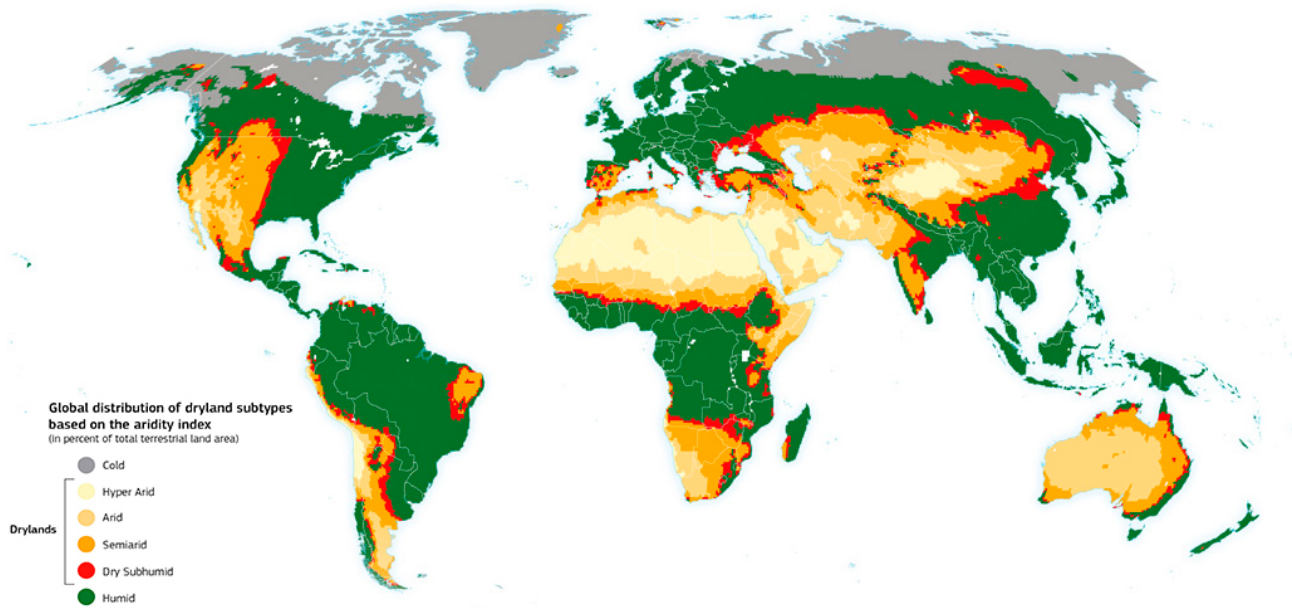


Figure 3. Arid territories according to an aridity index. Source: [Carbon Brief](#).

that can enter the human body are motivating factors that influence the study of soil pollution and use of cleanup methods. But from a strategic perspective, less obvious global impacts of soil degradation should also be taken into account. The most urgent of them is desertification.

The classical meaning of desertification (according to the [UN Convention on Desertification](#)) defines the process as the “degradation of land in arid, semi-arid, and dry sub-humid areas for various reasons, including climatic fluctuations and human activity”.

Ukraine, as a country in the temperate climate zone, should not fall into the risk zone, given the relative locations of Ukraine and “arid territories” (receiving from 5 to 65% of water from atmospheric evaporation and transpiration). However, examining the aridity index

on a map (Fig. 3) more closely, the threat of desertification does not seem as far away as it did initially.

The most active combat during the Russian invasion of Ukraine occurs in the east and south of the country. This area is the nation’s most arid region, as well as possessing the most fertile soils – the [chernozem](#) area. This area was already the most vulnerable to climate change due to insufficient rainfall, but now there is also the issue of millions of hectares of land that are losing their fertility as a result of the war.

Unfortunately, military operations are not the only anthropogenic factor [accelerating](#) desertification processes in southern and eastern Ukraine. According to Ukraine’s Ministry of Environmental Protection and Natural Resources, six million hectares of agricultural land required restoration as early as 2021, prior to the start of the full-scale war,



mainly in southern Ukraine. The reason for this is expanding crop farming against a backdrop of an already very high degree of land cultivation ([56.8%](#) of the country).

With sustainable planning measures for soil reclamation and restoration, it is possible to change the situation and halt the desertification process.

## Summing up

At the beginning of 2022, the Ukrainian government [approved](#) a method for calculating soil damage resulting from emergency situations and/or armed aggression and fighting. Research in this direction has not ceased, and now the Department of Environmental Safety and Mine Action within Ukraine's Ministry of Defense is developing its own method, with some projects [proposed by the National Academy of Agrarian Sciences of Ukraine](#). That said, analytical phases for studying military combat consequences for soils are best presented in Ecodia Center for Environmental Initiatives's study "Land pollution as a result of

Russia's aggression against Ukraine", in collaboration with and [presented by Anastasia Sploditel](#).

The study focuses on the level of the *hromada*, Ukraine's smallest territorial division, similar to a municipality. After all, it is [most likely](#) that hromadas will be entrusted with the task of quantifying losses, developing restoration plans, and implementing specific measures for damaged land reclamation.

This study cannot be interpolated across the rest of Ukraine. The assessment of a wide range of threats points to the conclusion that land restoration plans must be unique for each community. At the same time, the research methodology can be applied universally across Ukraine, and that work lies ahead. With well-chosen solutions and financing, Ukraine will be able to leverage soil pollution solutions in planning measures to combat desertification, one of humankind's biggest climate challenges. •

*Main image source: Andriy Dubchak/  
RadioSvoboda.org*



# Dniester River – Evolution of transboundary river basin management in the post-Soviet space

by Ilya Trombitskiy

Translated by Nick Müller & Jennifer Castner

***Editor's Note:** This article is the third in a series focusing on management of water resources (in peacetime and wartime). In UWEC Work Group's first [article](#) on the management of transboundary basins during the war, the authors insisted that future interstate relations would need to be built according to European standards. The article focused mainly on the Dnipro and Don river basins.*

*Our next [article](#) on shared rivers focused on issues facing the transboundary Danube River delta, and described how, in the past, Ukraine's ill-advised steps to implement the Danube-Black Sea shipping route project led to a multi-year investigation under the [ESPOO Convention](#) initiated by Romania.*

*This new article, focuses on the joint management in both peacetime and wartime of another major river: the Dniester River is important for biodiversity, energy, transport, and tourism. It was here that, on the initiative and with the help of NGOs, a modern European cooperation agreement for the protection and sustainable development of that river basin was signed. In the lower reaches of the Dniester, the river forms vast floodplains, where migratory accumulations of important wetland bird species [concentrate](#). These important floodplains prompted the creation of two national parks here: Nizhnedniestrovsky ("Lower Dniester") in Ukraine and "Nistrul de Jos" ("Lower Dniester") in Moldova and three [Ramsar](#) sites and [Emerald Network](#) sites.*

*Opinions of the author may not coincide with that of the UWEC Work Group editorial board.*



Photo 1. Dniester hydropower complex, HPP-2. Source: Ilya Trombitskiy



Map 1. Dniester hydropower complex. Source: Wikipedia

In terms of economic importance, the Dniester is Moldova's main river, while it occupies third place in economic terms for Ukraine. Its basin is home to almost 8 million people – 5 million in Ukraine and 2.74 million in Moldova – with a total basin area of 72,100 km<sup>2</sup>.

One interesting feature of the river is that its upper and lower reaches lie within Ukraine, while the middle reach is located in Moldova. Water runoff is formed mainly in Ukraine's upper Carpathian part of the basin (70-80%), while runoff contributions from



the middle and especially the lower parts of the basin are extremely small and continue to decrease as a result of [climate change](#).

Annual runoff of the Dniester in 2016–2019 decreased to 8.72 km<sup>3</sup> at the city of Bender. Between 2010–2019, average annual discharge was 7.64 km<sup>3</sup> compared to 10.22 km<sup>3</sup> in 1951–1980 and 9.15 km<sup>3</sup> in 1991–2015. As has recently been demonstrated by analyzing flow rate in different sections of the river, this decrease in recent decades is associated not only with climate change, but also with the [influence](#) of hydropower.

## River flow and regulation

There are currently three dams on the main channel of the Dniester, each of which spans the entire width of the river. In Moldova, the Dubasari hydroelectric power plant (46 MW capacity, built in the mid-1950s) is presently managed by [Transnistria's](#) self-proclaimed authorities and exports energy throughout Moldova. Upstream in Ukraine, is the Dniester hydropower complex (DHPC), built in the 1980s just before the fall of the Soviet Union. This complex includes the Dnestrovsky reservoir containing about 3 km<sup>3</sup> of water, the Dniester hydroelectric power station (HPP-1, 700 MW capacity) in Novodnistrovsk, Chernivtsi Oblast, and further downstream a 20 km-long buffer reservoir ending at HPP-2 dam (27 MW) located in the transboundary Ukrainian-

Moldovan section of the Dniester River. A [pumped storage](#) hydropower plant was built on the right bank of this lower buffer reservoir, with the main purpose of accumulating energy produced by Ukrainian nuclear power plants to use it when energy consumption is low. To do this, generators pump water upward into a hillside storage reservoir on the right bank. During periods of high energy demand, these same generators produce energy by passing this water downstream through the generators into a buffer reservoir. Currently, there are four generators in operation, out of the seven planned in the original design. Work is underway to increase the buffer reservoir's capacity, including strengthening the river's banks and raising the level of the buffer reservoir by 7-8 meters, in order to put in operation the remaining three generators.

Because approximately 2.5 km of the right bank of the buffer reservoir belongs to Moldova, and the DHPC's negative impact on the downstream Dniester ecosystem is significant, Moldova constantly seeks to adjust DHPC operations in such a way as to minimize its negative impact on the Dniester ecosystem.

There are [several negative factors](#) involved. HPP-1 discharges water from its bottom water layers year round, and these deep waters maintain a steady temperature of roughly 6°C. These waters are also very transparent,





Photo 2. Protest in Chisinau against construction of dams on the Dniester. Source: Ilya Trombitskiy.

both atypical characteristics for waters in such latitudes, signifying that the river ecosystem downstream has changed quite a bit. There is also strong overgrowth of algae and macrophytes on the pebbly bottom. In autumn, the vegetation dies off, forming sludge and causing secondary river pollution. There have also been changes to ichthyofauna, with short-cyclic fish species (including invasive species), replacing warm-water commercially harvested fish species. As a result, several sandy beaches have been lost, and the river and the downstream Dubasari reservoir are heavily silted. This has subsequently significantly reduced its recreational value. The loss of [ecosystem services](#) and damage caused by DHPC operations is estimated in millions of US dollars.

## History of Cooperation

Bilateral water cooperation between Moldova and Ukraine along the Dniester was a continuation of Soviet-era relations. In 1994, Moldova and Ukraine signed an intergovernmental agreement on boundary waters, an [agreement](#) that was typical of the early post-Soviet period. The agreement addresses only shared sections of the river that form the border; the agreement considers neither the river basin as a whole, nor activities on it, nor the state of its ecosystems.

As might be expected, the agreement does not provide for stakeholder or public participation. Today, this old agreement about the Dniester remains in effect in parallel with a new treaty signed in 2012, in part due to a compromise with water management



authorities that ensured signing of the new treaty.

Signs of degradation in the Dniester ecosystem became more pronounced by the mid-1990s, i.e., ten years after DHPC commenced operations. By that time, Moldova had already ratified the Helsinki (Water) Convention (1992), which proclaimed integrated river basin management as the main objective of its transboundary water cooperation. At the same time, river management in both Ukraine and Moldova remained in the hands of water departments, following Soviet models (commissioners generally only discussing water allocation and management of transboundary sections of rivers). Non-Governmental Organizations (NGOs) Biotica Ecological Society and, later, Eco-Tiras International Association of River Keepers, set out to modernize the attitude of the Moldovan and Ukrainian governments with regard to co-management of its common river, the Dniester, on the basis of principles of integrated river basin management.

According to the Water Convention, countries should sign basin-wide agreements for watersheds of shared transboundary rivers. A [draft](#) of such a document, then called the “Dniester Convention”, was developed by these NGOs in 1999 and presented at the second river basin conference in Chisinau. At that time, the Moldovan Ministry of the Environment sent the text of the draft convention to the Ukrainian Ministry.

There was no response. A few years later, the Ukrainian side answered through diplomatic channels that it was not interested in creating a basin-wide agreement. Eco-Tiras environmentalists realized that without international support and using only the requirements of the multilateral Water Convention, a Dniester basin agreement could not be created. In response, Eco-Tiras drew the attention of two international organizations – Organization for Security and Cooperation in Europe (OSCE) and United Nations Economic Commission for Europe (UNECE) – to the appeal for creating a positive example for transboundary basin cooperation in the Eastern Europe, Caucasus, and Central Asia (EECCA) region. Together with these organizations, Eco-Tiras developed an international project and worked from 2004 to 2012 to finalize and lobby for the concept and document text.

It is noteworthy that NGOs were the primary driving force behind the process. During that period, the Ukrainian side rejected the possibility of even the existence of such an agreement for a very long time.

Finally at a [Meeting of the Parties](#) to the Water Convention in Rome in 2012, the Ministers of Moldova and Ukraine signed an [agreement](#) between the government of the Republic of Moldova and Ukraine’s Cabinet of Ministers on cooperation for the protection and



sustainable development of the Dniester River basin.

## Features and achievements of the new treaty

What are the details of this agreement and how does it differ from other similar documents?

Because it was recently refined with significant involvement by environmental NGOs, it is a very versatile document. In other words, it includes a wide variety of areas for cooperation. A significant number of articles deal with conservation of the river's ecosystem. As in many other similar agreements, it provides for the establishment and operation of a bilateral basin [commission](#) which includes the participation of representatives from central authorities, scientific community, and regional

authorities. The last component is included in response to the existence of the Transnistrian region of Moldova in the Dniester basin.

Relative to others of its kind, this bilateral agreement is unique in that it provides for the participation of environmental NGO representatives as full members of the commission, a fact reflected in their invaluable contribution to the initiation and development of the agreement.

Other important elements of the document are clauses that ensure transparency of the commission's work process, items detailed in river commission documents. Scheduled commission meetings are announced on its [website](#) at least a month in advance, and anyone can apply to participate in the commission's work as an observer.



*Photo 4. First meeting of the Dnestrovsky Commission in Chisinau, 2018. Source: Ilya Trombitskiy*



The site publishes draft agendas, draft decisions for discussion, and meeting minutes. The treaty also provides for three working languages on the commission, although in reality, previous meetings were held exclusively in Russian. Among treaties on transboundary waters drawn up in post-Soviet countries, this one is probably the most transparent and open to participation by any interested parties.

The agreement stipulates that the commission should meet at least once a year, rotating between the countries. In reality, however, in just over five years the commission has held three meetings: two in Moldova (in September 2018 and October 2021) and one in Ukraine (in April 2019).

Failure to comply with this provision was due to political instability in both states (change of governments, etc.) and when one state was unable to send its authorized delegates to commission negotiations. Still, most of the working groups established under the commission's auspices continued to operate during this period, using existing work plans and holding periodic joint meetings.

As already mentioned, while the commission stipulates the participation of representatives of the regions in its composition, this requirement is not observed for [Transnistria](#), even at the level of non-governmental organizations. The prevailing position

of the Moldovan government is the following: until the region's status is resolved, its participation within the Moldovan part of the commission is unacceptable. This approach does not quite coincide with the opinion of specialized international organizations, for example, the OSCE, whose mission in Moldova is laser-focused on the Transnistrian conflict, would prefer to use management of the Dniester basin as a non-political issue, an approach that would be acceptable for the "baby steps policy" that has so far dominated the Transnistrian settlement. In practice, Transnistrians have thus far participated in Dniester Commission meetings as observers, with the assistance and at the insistence of the international Global Environment Facility (GEF) project on the Dniester and managed by OSCE (2017-2021).

During the formation of the Dniester Commission, both parties agreed to each be represented by 19 members. The composition of the Moldovan part of the Dniester Commission was approved by government decree and has since undergone minor changes. The Ukrainian part of the commission is usually formed ad hoc on the eve of the meeting while representatives of Moldovan NGOs were delegated by the NGO community. In Ukraine, representatives of NGOs changed, and at the last meeting the NGOs officially included in it did not participate, due



to insufficient financial support. At the same time, interested Ukrainian and Transnistrian NGOs participated at their own expense as observers and without financial support.

The main results of cooperation within the framework of the Dniester Commission include:

1. Transboundary diagnostic analysis of the Dniester basin;
2. Adoption of a strategic action program with a plan for the Dniester basin until 2035;
3. Completed inventory of tailing ponds in the Dniester basin in Ukraine;
4. Ongoing work within the working groups' frameworks; and
5. Developing new "Rules for reservoir operations in the Dniester Hydropower Plant Complex".

The first version of the rules for operation of the reservoirs was approved in 1987 and was in effect until recently. Negotiation of a new version began in the late 2000s and has continued within the Commission's framework. Unfortunately, at the final stage, the Ukrainian side rejected most [proposals](#) related to environmental optimization and instead unilaterally approved its version of the rules in the spring of 2022. The Moldovan side continues to insist on revision of the document.

A significant disadvantage of the cooperation process is the implicit disregard for the treaty's Annex V, dedicated to cooperation in the conservation of biological resources, particularly fish resources. While Moldova (including Transnistria) introduced a moratorium on commercial fishing in the Dniester beginning in 2016, Ukraine does not wish to join it, although only a small section of the river not including the estuary is affected. The parties are also not cooperating on the issue of combating poaching.

## War and basin management

To what extent did Russian aggression influence the course of cooperation on the Dniester river? Given that the Dniester basin is located in southwest Ukraine, military operations have only a very limited impact on this region, and the war has almost no direct effect on its ecological state.

There is, of course, indirect influence, and it is expressed through a reduction in state funding to solve existing environmental problems (modernization of treatment facilities, etc.). At present, evidently the Russian side lacks opportunity or a plan to destroy hydroelectric dams on the Dniester, seeking only to weaken the hydropower industry. To achieve this, on 31 October 2022, Russian missiles destroyed some transformers at DHPC, complicating the supply of electricity



in Ukraine in winter months. Hasty unilateral adoption of rules for the operation of reservoirs could also be due to, or, rather, justified by “wartime requirements”.

The change in leadership of the Ukrainian Ministry of Environmental Protection and Natural Resources and formation of the State Agency for Land Reclamation and Fisheries in 2022 and a separate water agency that replaced the previous fishery and water management committees have significantly disrupted existing cooperation and dialogue. Cases of increased water discharges from the Dniester reservoir occurred, taking the Moldovan side by surprise, including discharges of water via the spillway (as opposed to turbines) during unusually low water levels in winter months. This despite the fact that a high water level would certainly be needed in April-May to ensure a full-fledged spring environmental water release. However, at the beginning of April, the Ukrainian side partially rehabilitated itself by accepting Moldovan proposals on scheduling the spring environmental release. The weather also helped its successful implementation, given rainy weather throughout April across the entire river basin.

In wartime, the role of international organizations and agreements related to cooperation on the Dniester is less clear. For example, the response to an appeal by [Eco-Tiras](#) representatives

submitted personally to the European Commissioner for Environment, Energy and Fisheries during a meeting in Chisinau with environmental NGOs regarding the two countries’ relations regarding the Dniester (including new rules for managing DHPC) contains only very general assurances:

The European Commission will continue to support both parties in reaching a solution, but both parties should find satisfactory and mutually acceptable solutions. At the same time, the ability to resolve even the most complex bilateral issues peacefully and in the spirit of good neighborly cooperation will be an indicator of the readiness of both countries to assume the obligations of EU membership.

What will cooperation be like after the war ends? This is a complex issue, which depends on many political, economic, and cultural factors. If the trajectory of European integration continues for both states, then the role of the European Union (EU) as a referee in bilateral disputes will also increase. To do this, the EU usually becomes a party to multilateral basin agreements, where member countries participate.

However, the European Commission’s interests are also contradictory. The goal should be, from one point of view, to ensure an acceptable environmental



status for the river in connection with the influence of Ukrainian hydropower. (The EU will push for compliance with requirements for rendering the DHPC's operating rules acceptable for the needs of the ecosystem.) From another viewpoint, the same EU will be interested in importing cheap electricity from Ukraine.

It is also important to consider the significant role that oligarchs have played and continue to play in Ukraine as it relates to setting priorities and budgetary policy. This includes hydropower (where there is budgetary favoritism for hydropower as "green", etc.).

Lastly, as the larger country that controls the upper stretches of the river, Ukraine has unfortunately been reluctant in recent decades to cooperate equally with the small, downstream nation of Moldova, and this attitude is only likely to increase if its influence in the international arena continues to grow in the future. This political trend is called "hydro-hegemony", and it is typical for many large countries controlling river headwaters (e.g., China, Turkey, and the United States). There is little room for maneuver, although cooperation will continue, for all its complexities.

On the other hand, expected investments in Ukraine's recovery could assist in implementing measures to rehabilitate the river basin, such as liquidation of tailings, reconstruction of wastewater treatment facilities, etc.

## Transnistria's environmental challenges

*From the Editors: A natural question arose when analyzing management of the Dniester basin. How will its management be affected by the three-decade existence of the unrecognized Transnistrian republic, protected by the Russian military on the left bank of the river?*

In accordance with Moldova's constitution, Transnistria has a special status within the Republic of Moldova. For geographic reasons, Transnistria (left bank of the Dniester) has the same interests in relation to the Dniester River as does the right bank of Moldova, so there is no divergence in policy positions between the two riverbanks. They could also work together to form a shared position on water relations with Ukraine, and this type of joint work would definitely benefit the river.

Industrial enterprises located in Transnistria (particularly for metallurgy and cement plants in the north in Rybnitsa and Moldavskaya State Regional Power Plant (MSRPP)) in Dnestrovsk in the south) operate thanks to Russian gas that is practically free of cost. At the same time, Dubasari HPP, as well as MSRPP) sell electricity to Moldova at lower than the market prices offered by EU countries. It forces Moldova, in the throes of an energy crisis, to allow the import of scrap metal for the Rybnitsa Metallurgical Plant. That company's products are exported



mainly to the EU despite environmental criticism. Today, since the start of the war, all of Transnistria's commodities go exclusively through Moldova's customs.

It is also worth noting that fish dieoffs with signs of poisoning have been occurring sporadically in the Dniester River for many years, specifically in the Dubasari Reservoir and upstream from it, especially in spring and summer. The [causes](#) of these dieoffs remain unknown, but are presumably a consequence of discharges from upstream activities on the left or right bank of the river.

Today, it seems likely that war in the region, armed forces in Transnistria, and enormous weapons depots and ammunition in the village of Kolbasna near the border with Ukraine do not have any serious impact on the environmental state of the Dniester River. At the same time, the war enables government and business to become distracted from the environmental component of bilateral basin cooperation and to act in ways that are contrary to the interests of the basin's sustainable management. •

*Ilya Trombitskiy is the director of Eco-Tiras International Association of River Keepers in Chisinau, Moldova.*



## About Eco-Tiras

Eco-Tiras International Association of River Keepers brings together Moldovan (including Transnistrian) and Ukrainian environmental NGOs in the Dniester River basin. They collaborate with the goal of informing and influencing the work of the authorities, including the Commission. NGO members participate in scientific conferences focusing on the Dniester River basin. Twelve such have already taken place, the last of which was in October 2022 in Chisinau, and conference materials are publicly available.

Every year Eco-Tiras conducts a ten-day youth summer program attended by young people from both sides of the river and dedicated to the challenges facing





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the Dniester River. Whenever necessary, the Association collects signatures from its NGO members for petitions seeking to influence government decisions related to the Dniester. The most recent of these were recommendations to the Dniester Conference and a negative evaluation of a draft bill seeking to facilitate extraction of sand and gravel from the river under the pretext of developing river navigation.

*Main image: Dniester River at the northern Moldova-Ukraine border. Source: Ilya Trombitskiy.*

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# Bellona: Undesirable openness and the sanctions war

*by Vera Kuzmina  
Translated by Nick Müller*

This April, the Prosecutor General's office recognized the Norwegian environmental organization Bellona as an "undesirable organization" in Russia. According to these officials, "the organization's activity is aimed at undermining the Russian economy, discrediting the domestic and foreign policy pursued by government authorities, and destabilizing the socio-political situation", all of which pose a threat to the foundations of constitutional order and Russia's security. The

organization was just one year shy of celebrating 30 years of activity in Russia. UWEC Work Group explains what Russia has lost by forcing the organization to leave.

Two days after the announcement of the organization's "undesirable" status, Aleksandr Nikitin, founder and leader of Bellona Russia commented, "Now none of this makes any sense. It's all null and void."



## Bellona's founding

[Bellona](#) began its work in Russia in 1994, opening its first branch office in Murmansk. The branch dealt with nuclear waste and nuclear-powered submarines, sunk and abandoned in northern seas. Based on open sources including in mass media, organization experts issued a report entitled "Sources of radioactive pollution in Murmansk and Arkhangelsk Oblasts", also known as "The Black Book".

In 2001, retired first rank captain and author of the Bellona report Aleksandr Nikitin wrote:

In March 1994, information was made public, and, in fact, saved the Arctic from nuclear catastrophe. A report from Bellona, an organization little-known outside Norway, contained data hidden by the Soviets and then Russian military forces for many years. The secret consisted of roughly 150 decommissioned nuclear-powered submarines (NPS) berthed at Northern Fleet naval bases "until better times", along with spent nuclear fuel. The problem was that these NPS rust very quickly, and their dangerous contents – undischarged reactors – could leak into the Barents and White Sea at any moment.

The next "[Blue Report](#)" or the "Northern Fleet" report was issued in

1995, again with Nikitin as lead author.

In the 1990s, approximately 70% of the Northern Fleet's nuclear-powered submarines were decommissioned and left awaiting disposal. On most of these ships, nuclear fuel remained inside the reactors. Despite this, the ships were ignored. The fleet's employees waited for their salaries to be paid for months, there was risk of social unrest, spontaneous flooding of ships, and eventual ecological disaster.

Russian intelligence services didn't like the report, and Bellona's work in Russia essentially halted between 1995 and 1999. The report's lead author Alexander Nikitin was accused of disclosing state secrets. While Nikitin's trial was underway, international negotiations on safety programs for decommissioned nuclear submarines got underway.

As a result, the first such initiative aimed to abate Lapse floating maintenance base, which for many years served as a storage facility for spent nuclear fuel (SNF) and radioactive waste. Its accidental flooding could have caused large-scale radioactive contamination.

In 1995, after a series of seminars, the EU included the Lapse into international programs seeking to ensure nuclear facility safety. This was [followed by](#) almost ten years of international negotiations about the fate of Lapse, a process in which Bellona took part.



During this time, the ship's hull was strengthened, and its waste was sealed off with concrete mortar to prevent leaks. It was only in 2012 that the European Bank for Reconstruction and Development (EBRD) allocated funds to transfer the Lepse to the Nerpa naval shipyard, where specialists began the final removal of the vessel's SNF. The EBRD-managed program was financed by the [NDEP Nuclear Window](#), an international fund with contributions

from Belgium, Canada, Denmark, the European Union, Finland, France, Germany, the Netherlands, Norway, and the United Kingdom.

In 2000, the [Russian Supreme Court](#) found Nikitin not guilty. To date, this is the only legal case in Russia to acquit someone for a charge of treason.

After 2000, Norway began to allocate money for the disposal of old submarines, followed by subsequent financial support from the EU.

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**OVER 30 YEARS OF BELLONA'S WORK IN RUSSIA, FOREIGN COUNTRIES HAVE SENT MORE THAN \$2.5 BILLION TO ADDRESS THE ISSUES OF SNF AND SUBMARINES. MORE THAN 100 OLD NUCLEAR SUBMARINES HAVE BEEN CONVERTED FROM "TICKING TIME BOMBS" INTO SAFE FACILITIES, AND THE LEPSE FLOATING BASE WAS MOTHBALLED AND IS NO LONGER CONSIDERED A THREAT.**

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In 1998, Bellona opened a second branch office in St. Petersburg with additional mandates beyond nuclear waste. Staff there also dealt with public environmental rights and began to assist in protecting them, conducted seminars, and published brochures that helped people understand Russian and international laws related to environmental conservation.

Over time, Bellona expanded the geographic scope of its projects. Its staff began to study the safety of nuclear

industry facilities, closed and tightly controlled institutions known for major accidents. One of the most significant cases was the 1957 [accident](#) at the Mayak plant in Chelyabinsk Oblast. Bellona employees also monitored the environmental situation at a mining and chemical plant in Zheleznogorsk and at Siberian Chemical Plant in Seversk. Both enterprises supplied the Russian nuclear industry with equipment and materials.

In 2005, the "Red Report" or "[Russian nuclear industry: need for reform](#)" was



released. Bellona specialists reported that the report could be found on the desks of many of Rosatom State Atomic Energy Corporation's (ROSATOM) top managers. A few years later, Bellona representative Alexander Nikitin joined ROSATOM's Public Council.

In 2011, the law on "Management of radioactive waste" was adopted. This new law required that all radioactive waste located inside Russia be stored in disposal facilities or secured safely. In 2019, ROSATOM was entrusted with new tasks of handling Class I and II hazardous waste. An Environmental Commission was established under ROSATOM's Public Council. It included two working groups: one to manage radioactive waste and another to manage Class I and II hazardous waste. The commission was headed by Alexander Nikitin, general director of Bellona at the time.

Bellona's website [notes](#) that, "Since Bellona began its work in Russia, the organization has engaged with more than 15,000 students in environmental legal work, provided free legal assistance to thousands of ordinary Russians and organizations, conducted more than 800 environmental courses for more than 16,000 Russian schoolchildren, and published over 10,000 articles and over 100 reports on environmental problems and solutions. 30 of these reports dealt with issues regarding nuclear safety. Bellona has also published 84 issues of

its environmental journal Ecology and Rights.

## Bellona's exit

After Russia's invasion of Ukraine, Bellona closed its offices in Russia and moved a portion of [its employees](#) from Russia to Vilnius (Lithuania). The decision had been made earlier in 2022, so when the organization was recognized as undesirable, no employees remained in Russia.

As Nikitin clarified, after the start of the invasion, he left ROSATOM's Public Council. After moving to Lithuania, Bellona staff continued to publish their magazine and write articles about the situation in Russia.

*"We didn't think we could possibly be labeled an 'undesirable' organization. In the 14 months since the war started we have been developing strategies and plans and updating the website. We are not particularly active, especially in political terms. The undesirable status was unexpected,"* recalls Nikitin.

According to a number of experts interviewed by UWEC, restriction of Bellona's activities in Russia came in response to Norway's [expulsion](#) of Russian diplomats on 14 April. Bellona is not the only environmental organization deemed undesirable. In 2022, this status was given to the Heinrich Böll Foundation's Moscow branch office, which operated in Moscow for over two decades. The first environmental NGO to be declared "undesirable" (in 2018)



was Pacific Environment (known as PERC in Russia), which had also worked in Russia since the 1990s.

In Bellona's case, *"this was most likely a retaliatory measure, although it is not clear why the sanctions were applied to environmentalists and not diplomats,"* explained a source familiar with the situation.

*"Everything written by the Prosecutor General's Office to explain the reasons for assigning Bellona this status is a story not about us, but about something else,"* commented Nikitin.

Primarily dictated by the political situation, the actions of the Prosecutor General's office led to attempts to conceal from public view in Russia important documents and reports relating to SNF and the Northern Fleet submarines still rotting at their berths. Also, Russian citizens will be unable to access Bellona's large library of its publications on environmental rights. Access will also be lost to the [Ecology and Law](#) journal, distributed to subscribers across Russia until now. Additionally, Russian journalists will not be able to seek comment from Bellona experts, leaders in the topic of nuclear waste and environmental rights.

This situation will lead to distortion of the situation, particularly on subjects where Bellona has engaged. The exit of an international organization representative from ROSATOM's Public Council puts other members of

the council in a vulnerable position and makes it easier for ROSATOM staff to avoid uncomfortable questions.

## **How Russian citizens can continue to use Bellona materials**

*"These materials can be read. No one will punish you for this, but posting links to our materials or quoting them anywhere is now an administrative offense, and repeat offenders are threatened with criminal prosecution"* [notes](#) the organization's website.

In Russia, there is no statute of limitations on liability for social posts with links to Bellona or for citing Bellona materials. To avoid liability, links should be removed in social media. Even PDF versions of Bellona materials are not permitted to be distributed.

For first-time offenses, the fine can range from 5,000-15,000 rubles. In the case of repeated offenses, [Article 284.1 of the Criminal Code](#) can come into play, threatening imprisonment of up to four years. Compulsory work, freedom restriction, or a fine of up to 500,000 rubles may also be handed down. Much depends on the investigation and particular judge overseeing a given case.

Bellona's lawyers specifically noted that there is not yet any legal precedent for prior cooperation with undesirable organizations. Wearing T-shirts, carrying bags, flash drives, or thermoses with the Bellona logo is no longer

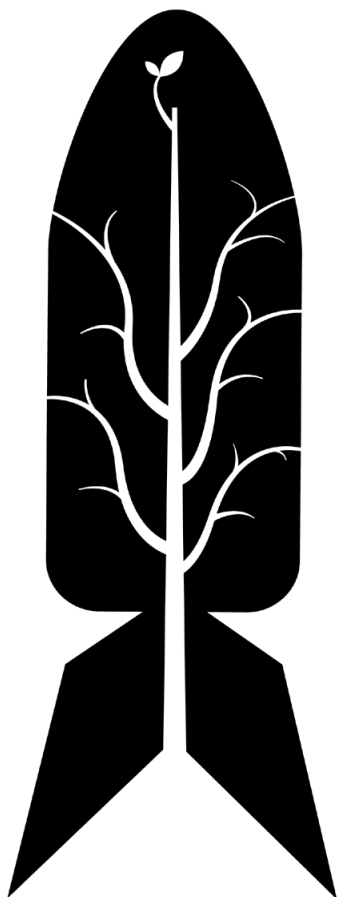


allowed in public, and their distribution could potentially result in prosecution.

*“Things have completely changed over the last 14 months. Today, we cannot assess or predict from a pre-war perspective. Whether ROSATOM will continue its “greening”*

*course or become closed-off is a question without an answer. ROSATOM remains a state-owned company in a country at war. Ecology is hardly a wartime priority,”* Alexander Nikitin commented. •

*Main image source: Radio Free Europe*



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