



SDG LENS

Monitoring Sustainable Development
in Eastern Europe & South Caucasus



SPOTLIGHT REPORT ON THE IMPLEMENTATION OF SDG 6: CLEAN WATER AND SANITATION

IN UKRAINE

6 CLEAN WATER
AND SANITATION



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This publication was produced as part of the program **SDG LENS. Monitoring Sustainable Development in Eastern Europe and the South Caucasus**. SDG LENS is a capacity-building program for civic actors, representatives of NGOs and grassroots initiatives, researchers and experts from Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine. It empowers civic actors to monitor, report and advocate the 2030 Agenda and to stand up for peace, climate and justice.

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SUMMARY

The sixth Sustainable Development Goal, 'Clean Water and Sanitation' (SDG 6), has been defined as a priority for the Regional Forum on Sustainable Development for the UNECE Region 2023. This is because, under the influence of global climate change, the issue of water supply is becoming increasingly significant every year. It is also a priority goal for Ukraine. However, its implementation is complicated due to the active hostilities.

Despite significant progress in achieving SDG 6 indicators in 2020-2021, the full-scale war not only makes it impossible to achieve them by 2030, but also sets the country's progress back.

According to [UNICEF's preliminary estimates](#)¹, due to the consequences of Russian aggression, almost 1.5 million Ukrainians have been left without access to tap water, and more than 4.5 million are at risk of losing their water supply. With the help of international partners, Ukraine managed to restore part of the damaged water supply and wastewater treatment systems and prevent more large-scale losses.

INTRODUCTION

The implementation of the SDG in public administration was begun by the President's decree in 2019. Separate programs aimed at improving SDG 6 indicators existed even before 2019, but none of them were fully implemented:

- The national target program 'Drinking Water of Ukraine' for 2011-2020 aimed to improve the quality indicators of drinking water ([only 13.2%](#)² of measures were implemented);
- The national target program for the development of water management and the ecological improvement of the Dnipro river basin up to 2021 aimed to provide a centralized water supply to rural settlements that use imported water (the program was terminated due to a lack of funding).

On February 15, 2022, the program '[Drinking Water of Ukraine](#)'³ for 2022-2026 was approved by the Verkhovna Rada of Ukraine. However, due to the aggression of the Russian Federation, the program remains unimplemented.

The Water Strategy of Ukraine for the period up to 2050, which is the only national document based on the tasks and indicators of SDG 6, [was approved](#)⁴ in December 2022.

Currently, the need to achieve the SDGs, and SDG 6 in particular, is taken into account in the process of forming and implementing the state policy of Ukraine and is reinforced by European integration processes.

KEY STATISTICS

WATER SUPPLY OF UKRAINE

Ukraine is a country with [insufficient water resources](#)⁵. Almost 80% of Ukraine's supply of drinking water comes from surface sources, while most river basins are classified as polluted and highly polluted (according to the [hygienic classification](#)⁶ of water bodies by degree of pollution). This problem is most acute in the southern regions of Ukraine (Dnipropetrovsk, Zaporizhzhia, Mykolaiv, Kherson and Odessa).

The 20% of the water supply that is provided for by underground water is more resistant to pollution. However, [regular cases](#)⁷ of water pollution with nitrates, phosphates, and certain types of pesticides are recorded in industry-laden regions of Ukraine and areas with extensive agriculture. In addition, extensive farming methods, such as increasing the areas for plowing, occur at the expense of lands that should be protected as coastal protective strips of water bodies. Another threat to the supply of safe water coming from groundwater is the use of hydraulic fracturing for the production of unconventional hydrocarbons.

IMPACT OF CLIMATE CHANGE

Due to climate change, Ukraine's climate is becoming more continental. Long-term droughts, uneven precipitation, and the active evaporation of moisture from rivers in arid regions (due to record plowing in Europe and a large number of artificial reservoirs) have led to a constant [decrease in the water content of rivers](#)⁸.

In addition, the processes of desertification and the reduction of the water level of rivers increase the scale of irrigation of arable lands. New artificial irrigation projects are being implemented in various regions of Ukraine after receiving positive results from Environmental Impact Assessment studies (EIAs), constituting another reason for the reduction of water levels in rivers.

The consequences of climate change have also become a threat to wetlands, which act as a natural filter, [cleaning](#)⁹ surface waters from pollutants that enter it from atmospheric precipitation, soil, industrial and domestic effluents.

NATIONAL INDICATORS

Solving the problem of surface and underground water pollution is a national priority. Special indicators have been established by the state for monitoring it. The vast majority of them relate to safety, the quality of drinking water (3 indicators), and sewage (4 indicators); others are dedicated to water use and water management (4 and 1, respectively).

Among the indicators of the achievement of the SDG defined by Ukraine, there are no indicators related to adaptation to climate change, in particular, the protection and preservation of water ecosystems, including [wetlands](#)^{10*}.

* For SDG 13 'Mitigate climate change impact' only ONE national target with the indicator: 'Ratio of GHG emissions to 1990 level, %' is defined.

THE IMPACT OF WAR

During the war, water supply enterprises faced [many problems](#)¹¹: regular and long-term power outages, shelling, etc.

According to [preliminary estimates](#)¹² by the World Bank, Ukraine suffered losses in the water management and sanitation sector to the amount of 1.3 billion US dollars. In particular, 24 water treatment facilities, 38 water pumping stations, more than 800 km of water supply networks, 240 km of sewage networks, 24 wells, 5 laboratories and 32 water towers were [completely or partially destroyed](#)¹³.

The war also caused collateral damage: it deprived enterprises of qualified workers in the industry, increased the load on the sewage treatment system in cities further from the front-line due to the influx of forced migrants, and led to the freezing of a significant number of investment projects (such as the reconstruction of the Bortnytsky aeration station in Kyiv). Periodic power outages also led to emergency situations arising.

PROGRESS ASSESSMENT

According to data from the State Statistics Service for 2020-2022, Ukraine has made significant progress in achieving the indicators of SDG 6. In particular, the volume of water per unit of GDP (m³/1000 UAH), the volume of polluted water discharges, and their share in the total volume of sewage have decreased. Over the past three years, updated Basin Councils have been created and are now functioning in Ukraine; river basin management plans [are being developed](#)¹⁴, and nine projects planned for 2025 are awaiting approval.

However, in some cases, this performance can be attributed to a 'statistical' approach, where data is collected without the possibility of verification (for example, reports from water users, percentage of non-standard water quality samples).

SAFE DRINKING WATER

[According to Ministry of Health data](#)¹⁵, the number of water supply facilities monitored annually is decreasing, with only 15,415 facilities monitored in 2021 compared to 16,097 in 2020 and 20,622 in 2019. Additionally, the number of samples taken decreased by more than half in 2021 compared to 2019 (from over 52,000 to 20,000). Despite this, water quality indicators continue to decline.

Correlation between monitoring studies cover, number of samples taken and water quality indicators in 2019-2021.

| | 2019 | 2020 | 2021 |
|--|--------|--------|--------|
| Number of water supply facilities covered monitoring studies | 20 622 | 16 097 | 15 415 |
| The number of taken samples | 52 487 | 37 195 | 20 000 |
| Drinking water samples, which did not meet hygienic standards for: | | | |
| - microbiological indicators | 5,5% | 7,3 % | 12,3% |
| - sanitary-chemical indicators | 7 % | 13,7 % | 16,4 % |

[According to research](#)¹⁶ conducted by the State Consumer Protection Service, in 2021, 12.3% of drinking water samples did not meet hygienic standards according to microbiological indicators, and 16.4% did not meet standards according to sanitary-chemical indicators (compared to 5.5% and 7% in 2019, respectively).

VOLUME OF SEWAGES

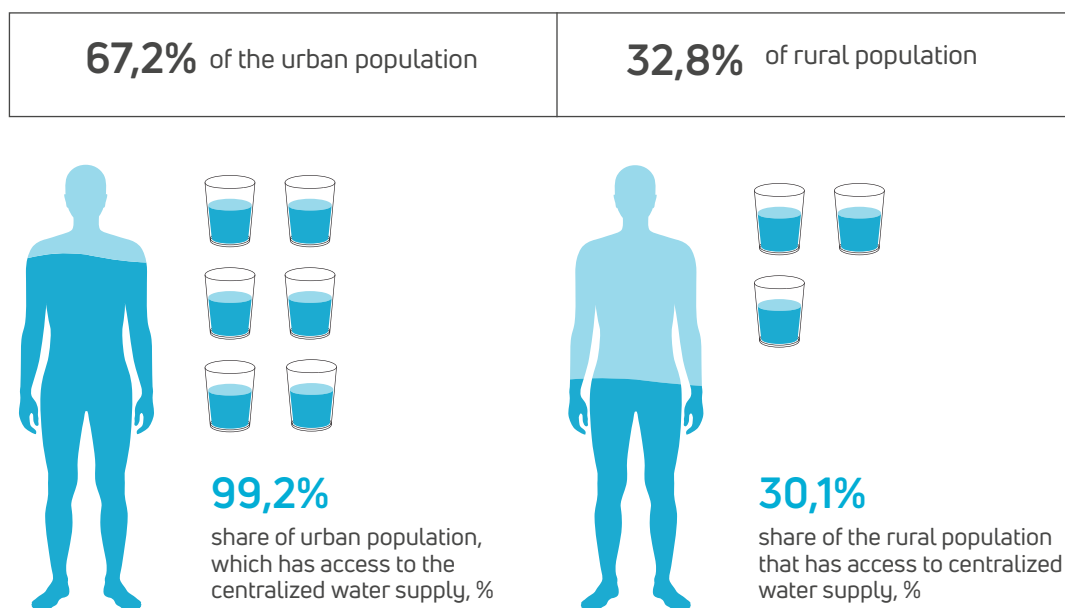
In recent years, there has been a [decrease in discharges of sewage](#)¹⁷, but the condition of surface water bodies, according to monitoring results, is practically [making no improvement](#)¹⁸. One of the reasons for this phenomenon is that polluters often fail to accurately report the volume of polluted or insufficiently purified water discharged into surface water bodies, both in Ukraine and in many other countries. This is because these discharges are often either not recorded or are downplayed on paper. To address this issue, an additional indicator should be formulated to reflect the proportion of surface water bodies with a 'good' condition. This approach is already used in the EU Water Framework Directive, and its main advantage is reliability: the improvement in the condition of surface water bodies is strong evidence of a reduction in sewage volumes.

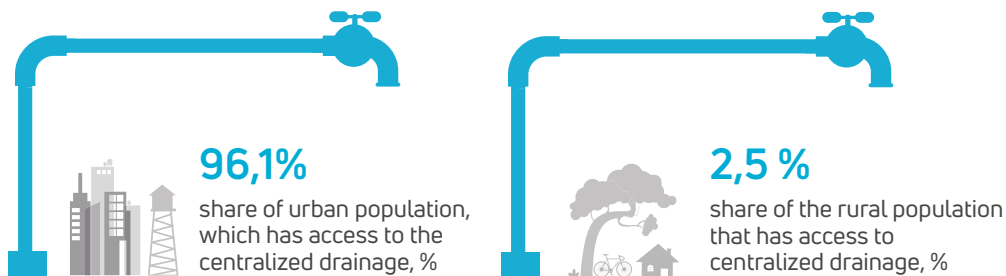
While indicators concerning the supply of drinking water and sewage treatment in European countries have made significant progress, efforts are now focused on increasing water use efficiency, promoting sustainable water use to reduce water deficits, and protecting aquatic ecosystems.

WATER SUPPLY AND DRAINAGE

When analyzing [Ukraine's progress](#)¹⁹ in implementing the targets of SDG 6, the disparity in access to drinking water and sewerage between cities and villages is striking.

Rural and urban populations with access to centralized water supply and drainage





In 2021, the centralized water supply was available to 98.7% of cities but only 23.5% of villages, and centralized water drainage was available to 95.9% of cities but only 1.5% of villages.

The largest expenditures of the state program for prioritizing the centralized water supply in settlements were directed towards the southern regions of Ukraine, with almost 200 million Ukrainian hryvnia (UAH) allocated for the Odessa, Mykolaiv, and Kherson regions between 2019 and 2021. Unfortunately, the water supply and drainage infrastructure of these regions suffered [massive destruction](#)²⁰ as a result of armed Russian aggression in 2022.

WATER PRODUCTIVITY

Water productivity, although it does not meet the established guidelines (7.32 m³/1000 UAH in 2021 against the guideline of 3.20 m³/1000 UAH for 2020), is gradually decreasing every year. However, the real reduction in specific water use may not be as significant. The reason for this is the voluntary nature of reporting on water use and the lack of an opportunity to verify the actual volumes of water used by enterprises.

If we recalculate the GDP per 1 m³ of freshwater used, Ukraine's water efficiency index is currently about 100 times lower than that of Great Britain (3.69 USD/m³ compared to 360 USD/m³, respectively).*

CHALLENGES RELATED TO SDG 6

FINANCING

According to data from the [dashboard](#)²¹ of the Cabinet of Ministers of Ukraine for tracking state budget expenditures for the implementation of the SDGs in Ukraine, in 2020-2021 the costs for achieving SDG 6 amounted to only 0.26% of the costs for achieving all the SDGs (or 1.37 billion UAH). With the start of the war in 2022, the state funding of similar projects took a back seat. Municipal investments in water and sewage infrastructure are also insufficient.

Therefore, an **important challenge** in achieving SDG 6 in the coming years is the search for international donors and partners who are ready to provide financial support to Ukraine. In order to improve the evaluation of the effectiveness of financing mechanisms for achieving SDG 6, it may be helpful to consider the framework guidelines 'Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices', developed by the Organization for Economic Cooperation and Development (OECD).

* The reason for this may also be the raw material nature of the Ukrainian economy, a significant part of which involves water-intensive industries: agriculture and metallurgy.

WATER MANAGEMENT

National level

The biggest **managerial challenge** for Ukraine is the full* implementation of European directives and the provision of funding for their implementation by 2030. This process depends on both the rapid harmonization of Ukrainian legislation and on investment in the relevant infrastructure: treatment facilities for drinking water and sewage, the water supply and drainage system, etc.

Ukraine's European integration obligations provide for the full implementation of a number of directives related to water issues and directly affect Ukraine's ability to improve a number of SDG 6 indicators, in particular:

- efficiency of sewage treatment: Council Directive 91/271/EC concerning urban waste water treatment;
- drinking and surface water quality: Council Directive 98/83/EC on the quality of water intended for human consumption and EU Nitrates Directive 91/676/EC;
- water resources management: Directive 2000/60/EC on establishing a framework for Community action in the field of water policy and Directive 2007/60/EC on flood risk assessment and management.

There is also a need to harmonize the concept of 'nature-oriented solutions' for wastewater treatment with current regulatory documents for construction and wastewater treatment.

The level of amalgamated territorial communities

Since 2016, decentralization has been implemented in Ukraine, and this has significantly increased the role of local self-government bodies in making and implementing decisions on their own territory, as well as managing financial resources from collections that are formed within communities. Thus, a sample study of the use of SDG indicators by the city councils of Kyiv, Lviv and a number of smaller cities showed that programs that actually contribute to the achievement of SDG 6 exist and are funded, but their progress is not measured according to SDG 6 indicators.

Indicators of SDG 6 at the regional level should be used to create regional development strategies and programs, and urban infrastructure development programs. This will make it possible to bring the SDG closer to the individual citizen, and make the benefit of achieving the indicators more clear for his or her household.

Local self-governing bodies, local enterprises and organizations of Ukraine actively unite in associations that focus on the development of recommendations for changes to legislation and the formation of state policy. The dissemination of 'positive practices' by associations in the implementation of joint regional projects is an important component of progress in achieving SDG 6 indicators.

* The current progress of the implementation of European law by Ukraine [was assessed](#)²² by the European Commission at 1 out of 5.

Management of labor resources

The success of investments in water supply, sewage management, and sewage treatment plants depends heavily on having a sufficient number of qualified construction workers and maintenance/operation personnel. At present, there is an [urgent need](#)²³ for training programs to upskill workers and create new professions as the industry transforms and digitizes.

Furthermore, new specialists are needed for the renaturalization of watercourses, implementing and operating nature-oriented solutions for sewage treatment, blue-green infrastructure, and 'ecological drainage' (SuDS). Successfully implementing such projects in local communities requires the systematic training of skilled workers.

Without this, post-war reconstruction and the modernization of infrastructure may be slow, and there is a risk of not achieving the indicators of SDG 6 even with sufficient funding. To address this, vocational education (TVET) is a leading tool in training the workforce necessary to achieve the indicators of SDG 6.

MONITORING

MONITORING THE QUALITY OF DRINKING WATER AND SURFACE WATER

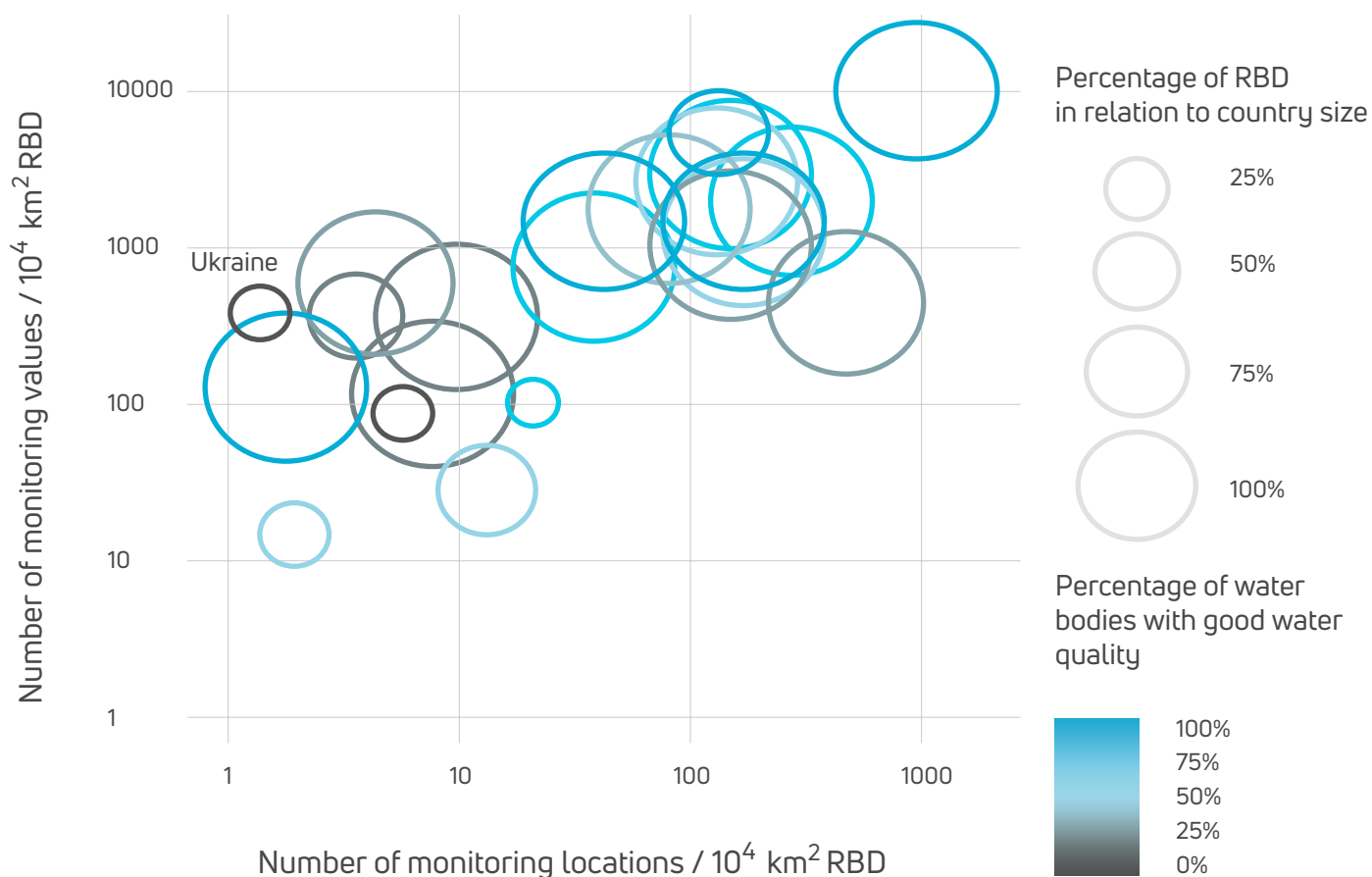
Monitoring the quality of surface and underground water in Ukraine is carried out by several state bodies, including the State Water Resources Agency, the Ukrainian Hydrometeorological Center of the State Emergency Service of Ukraine, the State Service of Geology and Mineral Resources, and the Ministry of Environmental Protection and Natural Resources of Ukraine. According to a [working document](#)²⁴ by the European Commission, these services have a responsibility for ensuring transparency in drinking water and wastewater management.

However, currently, only the data from 95 observation points (as of 2021) of the State Water Resources Agency can be accessed publicly. This is far behind the monitoring standards of developed countries, considering that the catchment area of the rivers in Ukraine corresponds to just one monitoring point. (INFOGRAPHIC 2) The regularity of water quality research is also a concern. There is a water sampling point on the banks of the Dnipro River at the point where it crosses the Ukrainian border, designed to monitor the quality of water entering Ukraine, including from the pulp mill in Svitloghorsk. However, samples are only taken four times a year.

To provide an objective analysis, it is necessary to increase the monitoring coverage of surface water bodies. It is also important to assess the contribution of spatial (nonpoint) pollution of surface waters due to intensive agriculture and plowing of coastal water protection strips, as required by a number of European directives. The simplest and most important step, however, is to combine monitoring data into a single database that is accessible to every Ukrainian.

Monitoring coverage of catchment basins

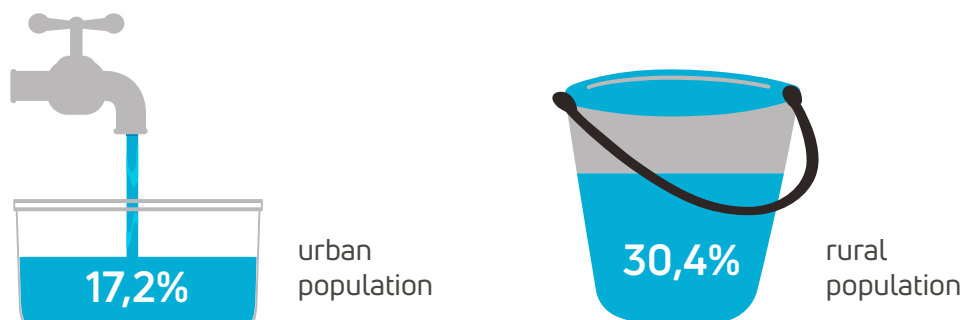
Summary of 2017 baseline indicator 6.3.2 submissions



Source: International Centre for Water Resources and Global Change.

Notes: RBD is reporting basin district. The circle size related to the proportion of the individual country covered. The location of the circles indicates the number of monitoring stations and monitoring values used in the indicator calculation in the individual country.

The percentage of non-standard tests of drinking water, in cities and in villages:



MONITORING OF THE IMPLEMENTATION OF THE SDG 6

Citizens can ensure effective monitoring of the state's performance of water drainage tasks (indicator 6.2.2 provides for the gradual coverage of the entire urban population with a drainage system) and water supply (indicator 6.1.5) at the local level, can monitor whether these indicators are included in local development programs. But for this, the public should be given access to the original spatial data on water supply coverage and drainage of the streets of cities and urban-type settlements.

The results of a selective survey of sites, programs and events of the regional centers of Ukraine and the city of Kyiv indicate that information about drainage and water supply is not public, funding is not transparent and such plans are not, in principle, tied to the implementation of the indicators of SDG 6.

Therefore, in order for the indicators and tasks of the SDG to acquire a form that is understandable for citizens, it is worth creating a new thematic layer on the geoportals of cities. On this layer, it would be necessary to indicate houses and streets with or without access to a centralized water supply or drainage, as well as the planned dates for coverage of these houses with access to these water systems with reference to relevant infrastructure development programs.

RECOMMENDATIONS FOR CIVIL SOCIETY

COMMUNITIES

- Defining and adapting regional and national indicators to the local community level.
- Ensuring that strategic socio-economic development documents, such as regional and city development strategies, align with Ukraine's SDGs using regional indicators.
- Implementing nature-based solutions and community-scale technologies for wastewater treatment, particularly in rural areas and small cities, including the use of ecological drainage (SuDS - Sustainable Drainage Systems) principles.
- Introducing necessary water utility professions on a regional level and providing dual training and workplace training opportunities.
- Creating a layer on city geoportals to display the coverage of centralized drainage systems and the city's plans for future network development.
- Systematically processing and publishing all available data on water quality in communities, including data from water utilities, the Hydrometeorological Center, and the State Water Agency, on an online map.
- Conducting environmental monitoring of water bodies at the regional level and promoting citizen science.

STATE

- Full implementation of European directives into national legislation.
- Revision of national indicators for the achievement of the SDGs, taking into account the conditions and consequences of the war, as well as changes in the approach to calculating the indicators.
- Introduction of the concept of 'nature-oriented solutions' for wastewater treatment into relevant regulatory documents.
- Formation of an effective and transparent financing/co-financing mechanism for SDG 6, using the OECD guidelines for water management.
- Increasing the number of monitoring points for monitoring the quality of drinking water and surface water.
- Digitalization of data on monitoring and water quality; providing public access to the data in an understandable form.
- Determining the need for labor resources and ensuring their training for the development of the water industry, its post-war reconstruction and modernization.
- Increasing the share of capital investments in tariffs for water supply and drainage; bringing tariffs to a break-even level with subsidies for the least secure part of the population.
- Development and implementation of measures to reduce spatial (nonpoint) pollution of water bodies by agriculture (for example, afforestation of riparian zones).

NGO, SCIENTISTS

- Dissemination of best practices for the implementation of nature-oriented solutions and 'community-scale technologies' for wastewater treatment, principles of 'ecological drainage' (SuDS - Sustainable Drainage Systems).
- Advocating for the inclusion of regional SDG 6 indicators in the development programs of cities, communities, and regions.
- Controlling and recording violations of legislation related to the pollution of local water supply sources and surface waters.
- Conducting an educational campaign to promote SDG 6 indicators and protect water resources.
- Uniting the efforts of specialized public organizations in the field of water protection to ensure equal access to information.

GENERALIZATION

Establishing a stable peace is a necessary condition for successfully implementing SDG 6 in Ukraine. Ukraine's post-war reconstruction program should include SDG 6 indicators at both the national and regional levels (city, amalgamated territorial community and settlement levels), as well as widely apply nature-oriented solutions, particularly in rural areas and small towns. Preparations of the relevant labor resources should begin immediately.

The key to achieving SDG 6 is the successful implementation of European directives and the full harmonization of Ukrainian legislation with the European, and the fulfillment of the tasks of the Water Strategy of Ukraine up to 2050, while a number of practical proposals formulated in this report will enhance the tracking of measures to achieve SDG 6, improve the process of informing the public, authorities and stakeholders about progress and provide them with tools to respond at the local level.

DATA USED

To prepare the report, the following sources were used: official statistical data, answers received from government agencies and local self-government bodies, open-access information, our own information collected during previous years, as well as results of the analysis of satellite images conducted by experts.

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