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BIOECONOMY FOR SUSTAINABLE DEVELOPMENT AT THE NATIONAL LEVEL

On 22 December 2023, at a meeting of the Board of the Ministry of Education and Science of Ukraine, the Roadmap for the Use of Science, Technology and Innovation to Achieve the Sustainable Development Goals (SDGs) was approved, developed according to the UN methodology, taking into account the recommendations for preparing roadmaps for the use of science, technology and innovation to achieve the Sustainable Development Goals provided by the Joint Research Centre of the European Commission (JRC/EC) [1].

The Roadmap states that the war has further exacerbated environmental problems. The lack of access to protected areas and facilities, the destruction of infrastructure, and the suspension of control measures have had a negative impact on the environment. The scale of environmental crimes committed by the Russian occupiers is growing. Some ecosystems and unique natural sites are no longer restorable. The full extent of the damage is still unknown, as monitoring systems have been disrupted or destroyed, and access to forests and other natural areas is currently restricted.

According to the Ministry of Environmental Protection and Natural Resources of Ukraine, published at COP27 (the 27th UN Climate Change Conference, held from 6 to 20 November 2022 in Sharm el-Sheikh, Egypt), more than 2,200 environmental crimes committed by the Russian Federation in Ukraine have been registered, and environmental damage has already amounted to more than €38 billion, with each day of war increasing this amount. And the direct damage to the climate as a result of Russian aggression is at least 33 million tonnes of CO₂ emissions [2].

According to the approximate estimates of the State Environmental Inspectorate of Ukraine, as of 20.07.2023, the damage caused by the hostilities and the environmental impact totalled UAH 2,071 billion, including air pollution – UAH 1,068 billion, soil pollution - UAH 13 billion, land pollution with waste – UAH 931 billion, and water pollution – UAH 60 billion (including water pollution – UAH 4.5 billion). The estimated amount of damage caused to the environment by Russia's undermining of the Kakhovka hydroelectric power station dam is UAH 146.4 billion [3].

The scale of the environmental problems caused by the war is growing every day, which will have catastrophic consequences both in Ukraine and abroad. Prior to the full-scale war in Ukraine, the main problems in the field of environmental protection and natural resources related to the C&T that negatively affect human health and ecosystem sustainability were the following:

- unsustainable use of key natural resources and their depletion;
- pollution of surface, ground and sea waters;
- lack of a proper technical base for conducting the necessary measurements and monitoring of environmental, including hydrometeorological, conditions and indicators;
- lack of a financial and economic mechanism for implementing climate change adaptation measures [4].

The main technological risks of failing to meet the targets of SDGs 6, 11, 12 and 14 are: insufficient funding for innovation; insignificant technological potential of the scientific sector; inconsistency of the topics of scientific environmental research with the needs of the economy; insufficient educational, scientific and technical support to address environmental challenges in terms of reducing impact, mitigation and adaptation to climate change; lack of qualified personnel and a growing trend of shortage of qualified personnel, which will affect innovation, as many Ukrainian experts and workers were displaced abroad, some of them

permanently; low capacity to assess the scale of the negative impact of military operations on the environment; the need to adapt the timing of achieving certain environmental goals due to the effects of the war; risks caused by the war: lack of access to funding for environmental modernisation and decarbonisation projects, inability to plan and implement medium- and long-term investment projects; low capacity of public administration in the environmental sector that deepened in wartime [5; 8].

The main overall concern since the beginning of the war is that economic and environmental progress is under attack, which is destroying hopes for a green and sustainable economy in Ukraine [6].

The bioeconomy is a new economic paradigm and one of the tools and mechanisms for addressing global sustainability challenges [7].

Thus, the tectonic geopolitical shifts caused by Russia's military aggression against Ukraine have become a catalyst for transformation, revision of policies and programmes to achieve the Sustainable Development Goals and build a new economic model rather than an obstacle. In order to overcome the economic crisis caused by the economic decline over the past decades and Russia's military invasion, Ukraine's post-war recovery requires transformational changes, including the formation and development of a new model of circular economy based on the bioeconomy.

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Література

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