

## RESEARCH SUMMARY

# **Assessment of the Rivne community's vulnerability to climate change and recommendations for adaptation measures to climate change**

## **Assessment of the Rivne community's vulnerability to climate change and recommendations for adaptation measures to climate change/authors: O. Pohl, O. Lyashchuk, O. Kondratyuk**

This document contains information about the vulnerability to climate change of the Rivne community and about the implementation of adaptation measures.

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## SUMMARY

To implement the Covenant of Mayors, the city of Rivne has started the development of the Sustainable Energy and Climate Action Plan (SECAP). Part of the SECAP is the assessment of climate risks and the development of adaptation actions plan.


***This study was conducted by the NGO «Ecoclub» to prepare public recommendations regarding Rivne's SECAP. According to the recommendations of the European Commission, public involvement is key to the successful implementation of adaptation measures. Compared to EU cities, Ukrainian cities are poorly researched, so public recommendations are even more valuable.***

The research methodology is based on publications by Kona A., Bertoldi P., Palermo V., Rivas S., Hernandez Y., Barbosa P., Pasoyan A. Guidebook-How to develop a Sustainable Energy and Climate Action Plan in the Eastern Partnership Countries, European Commission, Ispra, 2018, JRC113659.

In the fall of 2021, Ecoclub collected data for climate vulnerability analysis: meteorological indicators, distribution and characteristics of build environment, data on infrastructure and transport, waste management, water consumption, state of green areas, and so on. The opinions of community residents regarding the impact of climate change on them and the order of implementation of climate change adaptation measures in the community were also collected. Interviews conducted by the Ecoclub with representatives of the city's administration and municipal enterprises also served as an information source.

The study revealed that *the consequences of global climate change are already felt at the local level in the city of Rivne and the urban-type settlement of Kvasyliv*. In recent years, the community has repeatedly suffered from extreme weather events. The long-term average annual temperature increased from 7°C (1961–1990) to 8.2°C (1991–2020). Climate data indicate an increase in average annual temperatures for several years, which leads to more frequent heat waves in summer. Monthly precipitation is likely to increase, especially in summer, and winter precipitation will increasingly fall in the form of rain. An increase in the number of extreme weather events in the summer in the form of intense heavy rainfalls — such phenomena are already worsening the quality of life of residents and causing damage to the community.

In addition to the analysis of the city's spatial and climate data and the assessment of previous extreme weather events and their consequences, future challenges related to climate change through national climate models and projections were also considered. The design density model and NDVI index showed a high percentage of housing density in the private residential sector of the city and a small amount of vegetation in the recreational area of the community around the Basiv Kut reservoir.



At the time of the research, the community has no conceptions and plans for resiliency to climate challenges, and has only partial readiness and low ability, and desire to deal with climate events at the level of community administrations and city authorities. In this regard, adaptation measures were proposed based on the assessment of the climate vulnerability of the community.

***The proposed measures are mostly nature-oriented and aimed at increasing the knowledge of managers and residents about the climate crisis, and a better understanding of the city's vulnerability.***