

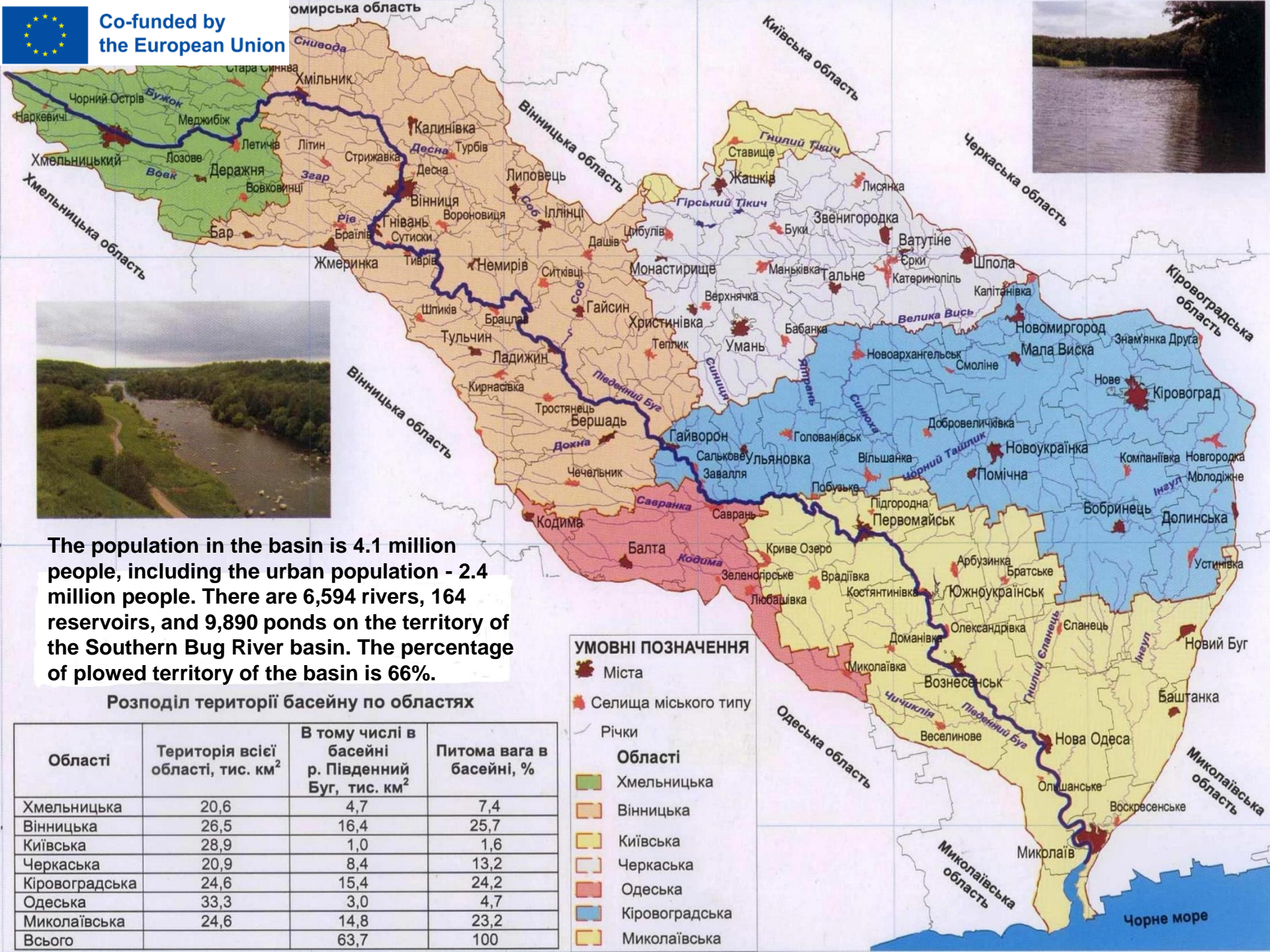


REGIONAL OFFICE OF WATER RESOURCES IN MYKOLAIV REGION



WATER RESOURCES AND ADAPTATION TO CLIMATE CHANGE IN THE SOUTH BUG RIVER BASIN

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Department***



The population in the basin is 4.1 million people, including the urban population - 2.4 million people. There are 6,594 rivers, 164 reservoirs, and 9,890 ponds on the territory of the Southern Bug River basin. The percentage of plowed territory of the basin is 66%.

Розподіл території басейну по областях

Області	Територія всієї області, тис. км ²	В тому числі в басейні р. Південний Буг, тис. км ²	Питома вага в басейні, %
Хмельницька	20,6	4,7	7,4
Вінницька	26,5	16,4	25,7
Київська	28,9	1,0	1,6
Черкаська	20,9	8,4	13,2
Кіровоградська	24,6	15,4	24,2
Одеська	33,3	3,0	4,7
Миколаївська	24,6	14,8	23,2
Всього		63,7	100

УМОВНІ ПОЗНАЧЕННЯ

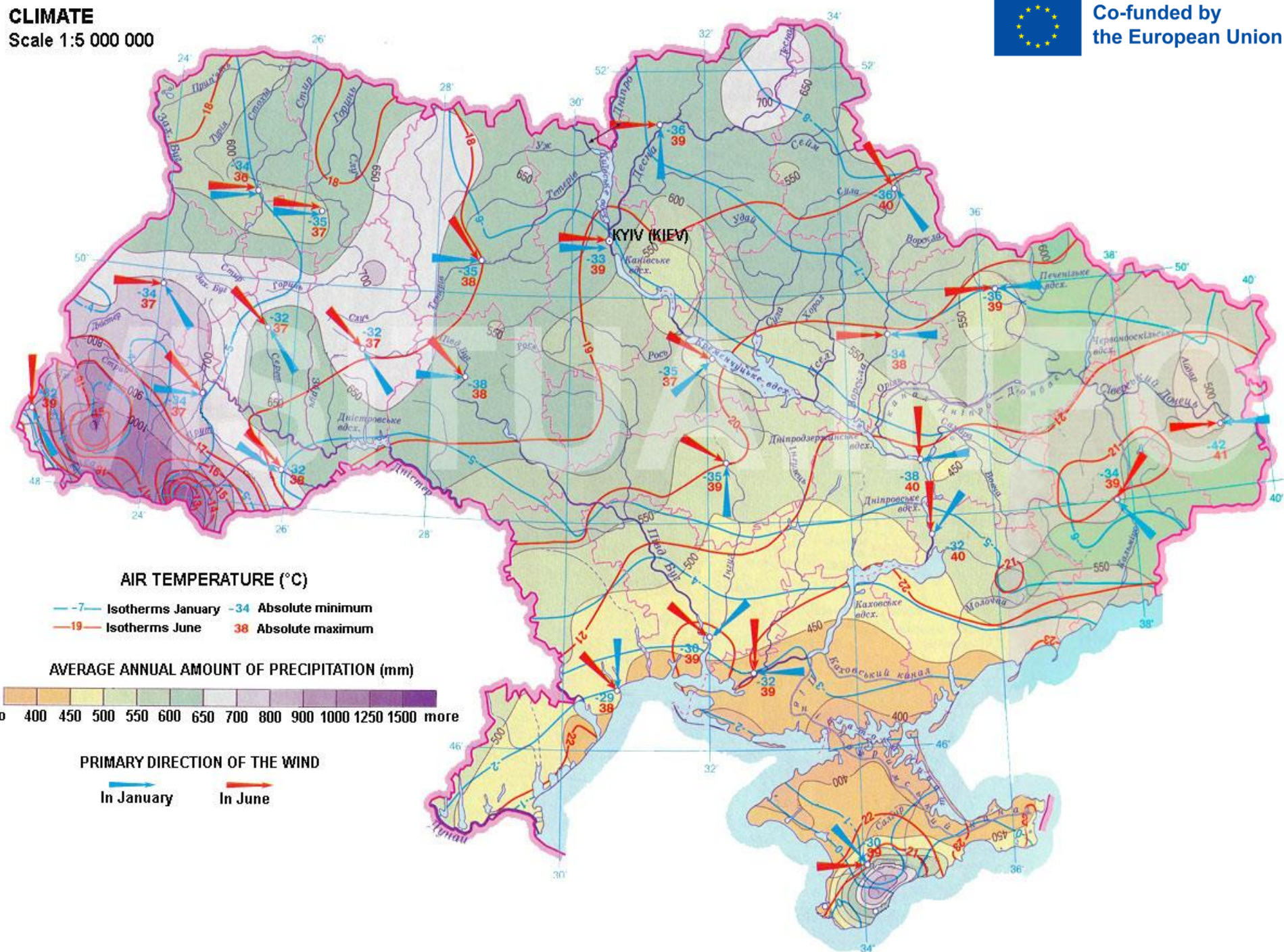
- Міста
- Селища міського типу
- Річки
- Області**
- Хмельницька
- Вінницька
- Київська
- Черкаська
- Одеська
- Кіровоградська
- Миколаївська

CLIMATE

Scale 1:5 000 000

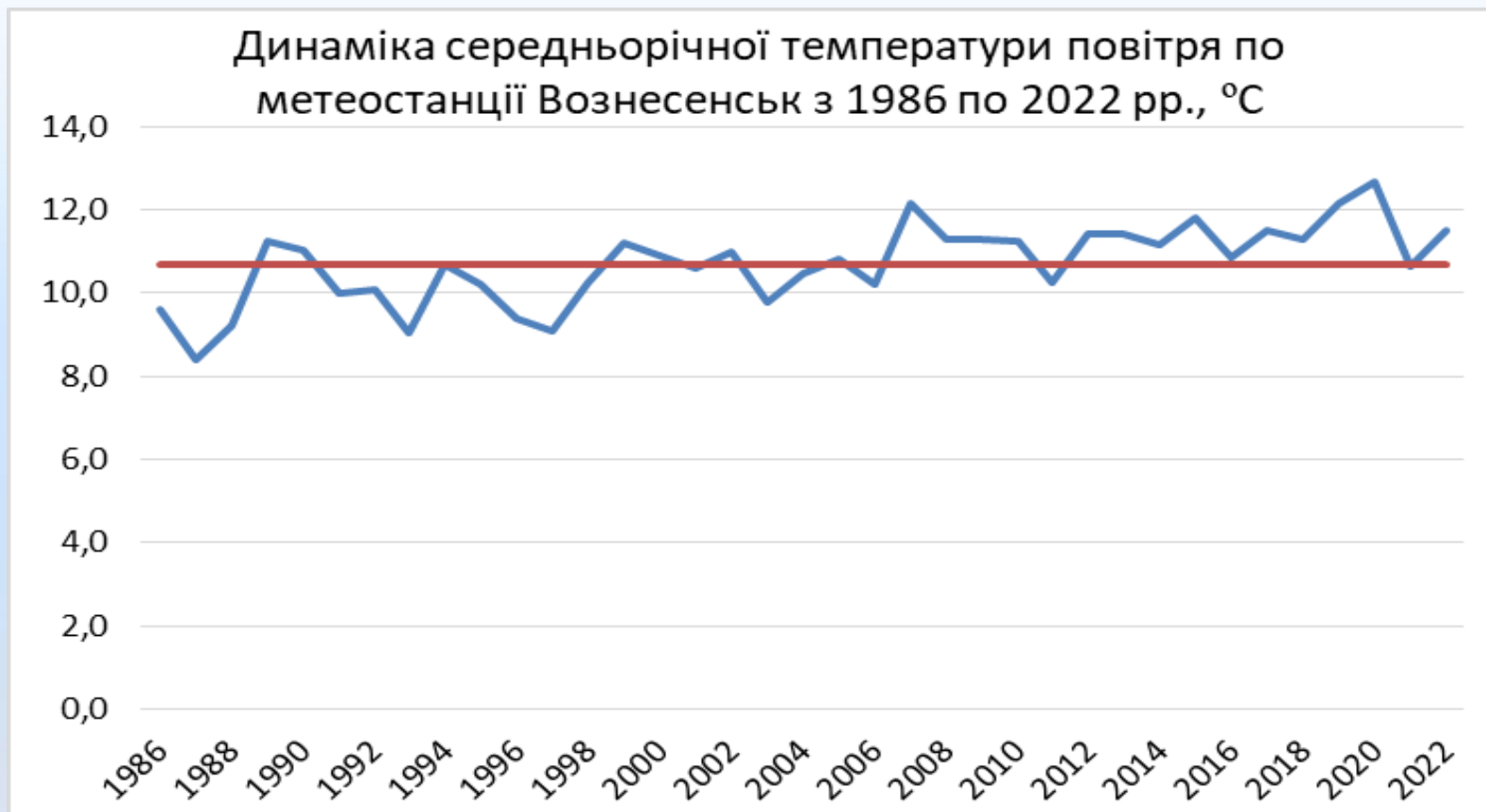


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Dynamics of the average annual air temperature at the Voznesensk weather station from 1986 to 2022, °C

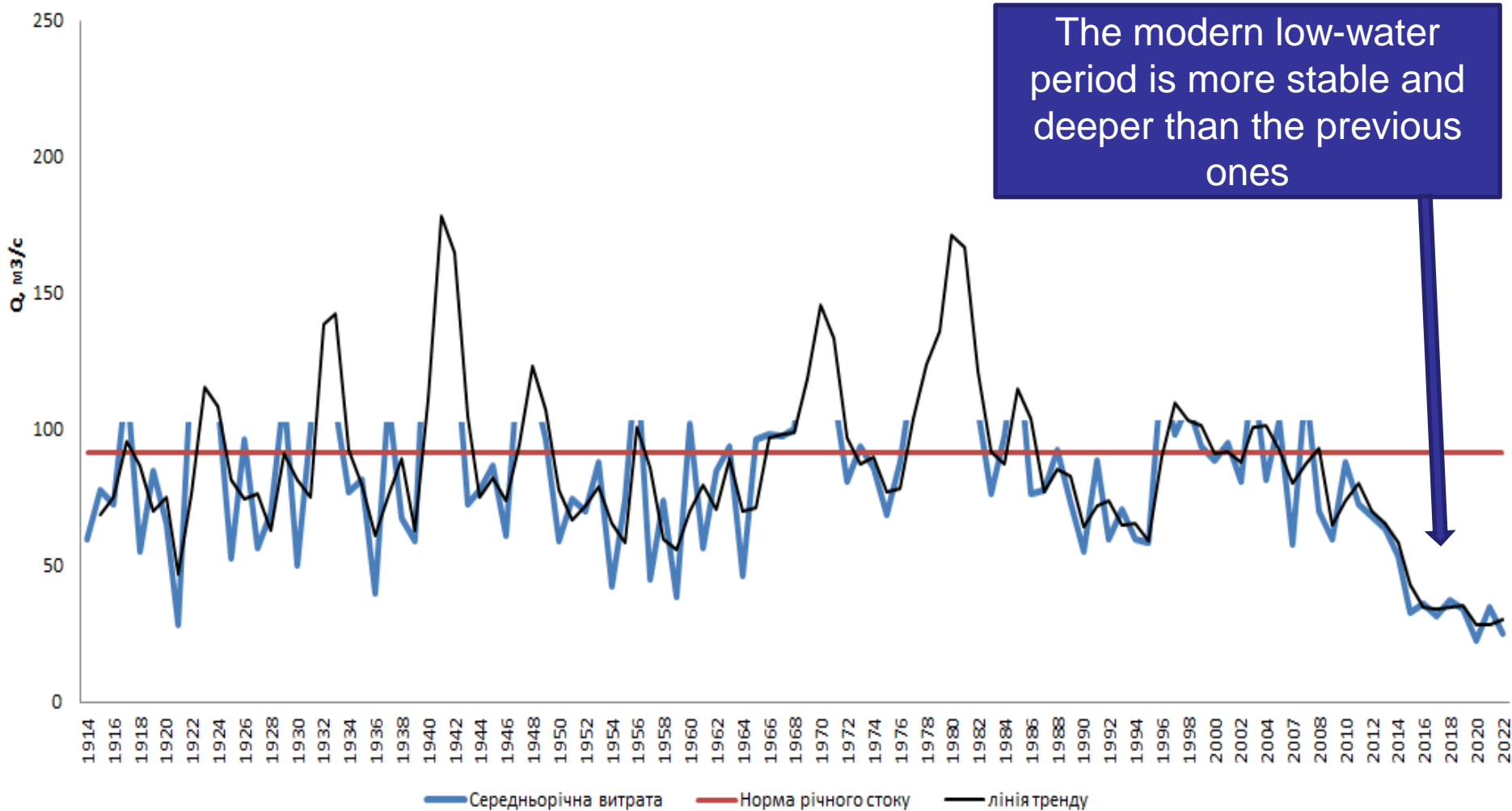


The average annual air temperature at the Voznesensk weather station, which is located in the lower part of the Southern Bug River basin, has risen by 0.7 °C since 2007 and amounted to 11.4 °C against the norm of 10.7 °C.



Analysis of water dynamics of the Southern Buh River

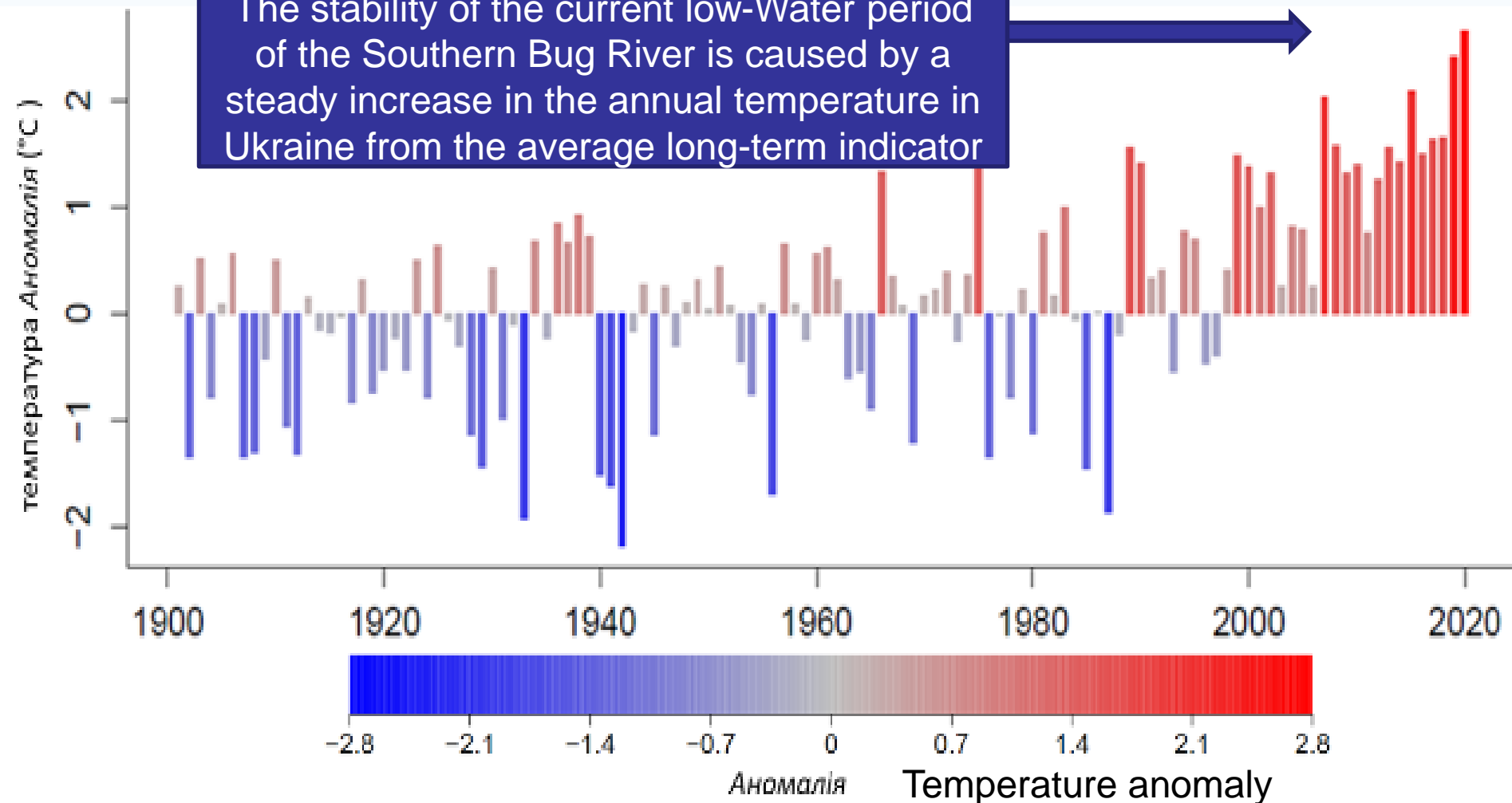
Хронологічний розподіл середньорічних витрат води (р. Південний Буг - смт. Олександрівка)





Change in annual temperature in Ukraine since 1901 (Berkeley Earth)

The stability of the current low-Water period of the Southern Bug River is caused by a steady increase in the annual temperature in Ukraine from the average long-term indicator



Зміна річної температури в Україні з 1901 року. Роки, тепліші за середній показник базового періоду 1961-1990 років, позначено червоними стовпчиками, холодніші — синіми. Чим більший стовпчик, тим більша відмінність від середнього багаторічного показника. Значення розраховано за набором даних Берклі про температуру Землі.



The flood risk management plan for individual territories within the South Bug River basin area for 2023-2030 states that by the end of the century in the South Bug River basin area, under optimistic scenarios of climate change dynamics, the air temperature will rise by 2-3°C, and pessimistic - its increase by 3-4°C is possible. The amount of precipitation in general may change slightly, but it is possible to decrease it in summer by 20-30 percent compared to the period of 1971-2000. At the same time, the amount of heavy precipitation will increase significantly by the end of the century.





Consequences of the impact of climate change on the water resources of the Mykolaiv region

Direct influence:

- increase in evaporation from the surface of water bodies.
- increase in water temperature in rivers and reservoirs.

Indirect influence:

- decrease in the amount of water resources.
- drying up of rivers and reservoirs.
- increase in water intake from reservoirs.
- decrease in the self-cleaning capacity of rivers.
- deterioration of the quality of water resources.
- eutrophication of rivers.

And many other negative consequences.



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The Pivdenniy Bug River in the period of low water



Rotten Elanets river



Chichikleya River



Gromokleia River



The vast majority of ponds are partially filled with water or completely dry.



Even if the most effective measures to reduce greenhouse gas emissions are applied and emissions stabilize, this will not mean that there will be no further consequences of climate change. The inertia of the climate system will make the planet feel these consequences for a long time, making the need to adapt to climate change inevitable.

Adaptation to global climate change and global warming is the adaptation of natural or anthropogenic systems in response to real or expected climate changes and their consequences.

Within the framework of adaptation to climate change at the basin level, problems directly related to the aquatic environment, changes in the water regime and the state of water resources are of greatest interest.



Adaptation measures to climate change are determined by the water strategy of Ukraine to 2050

- preparation and implementation of flood risk management plans in accordance with the legislation and provisions of Directive 2007/60/EC of the European Parliament and the Council of October 23, 2007 on the assessment and management of flooding risks;
- inclusion in river basin management plans of drought risk management measures for river basin areas, ensuring their further implementation;
- implementation of measures to mitigate the negative consequences of climate change by reducing the demand for water for irrigation, changing the terms of cultivation of crops, their assortment, the method of irrigation and the size of the cultivated area, as well as increasing the efficiency of water use through water reuse and the practice of sustainable use of water resources;
- stimulation of research on changes in the quantitative characteristics of water resources of Ukraine as a result of climate change;
- development and inclusion in river basin management plans of climate change adaptation measures taking into account medium and long-term climate change scenarios.



The strategy of environmental security and adaptation to climate change for the period up to 2030

- conducting sectoral studies on risk assessment, vulnerability and climate change forecasting in the spheres of water resources management;
- formation of action plans for adaptation to climate change in the areas of water resources management (within the river basin management plan);
- ensuring that the current and projected consequences of climate change are taken into account in strategic planning at the national, regional and local levels, as well as during the construction of infrastructure facilities;
- increasing the level of public awareness of environmental problems and the consequences of climate change.



In 2022, the State Water Agency of Ukraine developed the first draft of the "Southern Bug River Basin Management Plan for 2025-2030" (chapters 8-11 will be developed by the end of 2023) and the preparation of the Program of measures aimed at solving the main water-ecological problems in order to achieve environmental goals is underway for each defined body of water (or group of bodies), including problems due to climate change (droughts, low water).

ПРОЄКТ

ПЛАН УПРАВЛІННЯ
РІЧКОВИМ БАСЕЙНОМ ПІВДЕННОГО БУГУ
(2025-2030)





In order to adapt and mitigate the impact of climate change on the state of water resources, the Southern Bug river basin must first implement the following measures:

- implementation of comprehensive measures of ecological improvement and revitalization (restoration) of rivers and streams in order to preserve and maintain their water content and protection from pollution;
- implementation of measures to reduce the risks of water shortage;
- implementation of measures to achieve or maintain a good ecological and chemical state of surface water bodies;
- carrying out permanent information activities with the aim of increasing environmental education in terms of economical use and protection against pollution of water bodies.



Thank you for attention!

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The South Bug River