



Conveners Logos

Policy options for enhancing the drought agenda at national level

Biljana Kilibarda, MSc
Institute of Hydrometeorology and Seismology, Montenegro
UNCCD NFP, Chair of the CRIC
Drought Resilience +10 Conference, 01/10/2024, Geneva, Switzerland

COUNTRY PROFILE



- Montenegro is part of Southeastern Europe and the Western Balkans.
- Total surface area is 13,812 km². The length of the Adriatic Sea coast in the country amounts to 293 km
- Total population (2023): 633,158, Population density: 45.1 inhabitants/km²
- Administrative divisions: 25 administrative-territorial units - municipalities
- Nominal GDP (2022): 9 598€ per capita, The real growth rate of gross domestic product in 2022 was 6.4%.
- Agricultural land: 37.4%, 515.740 ha (0,79 ha per capita)
- Forest area: 53.4%,
- Protected areas: 12.7% of the country territory
- Diverse climatic zones ranging from Mediterranean climate along the coast to continental climate inland. Highest temperature: 44.8°C in Podgorica (Aug 2007).

CHARACTERISTICS OF CLIMATE –RECENT YEARS

2021-2022- Significant drought with the largest impact on agriculture and electricity production. 17,000ha of forest, total damage 280 million EUR

2023-The mean air temperature is above the average climatic norm - from 1.8°C in Ulcinj to 3.6°C in Bijelo Polje(1991-2020).

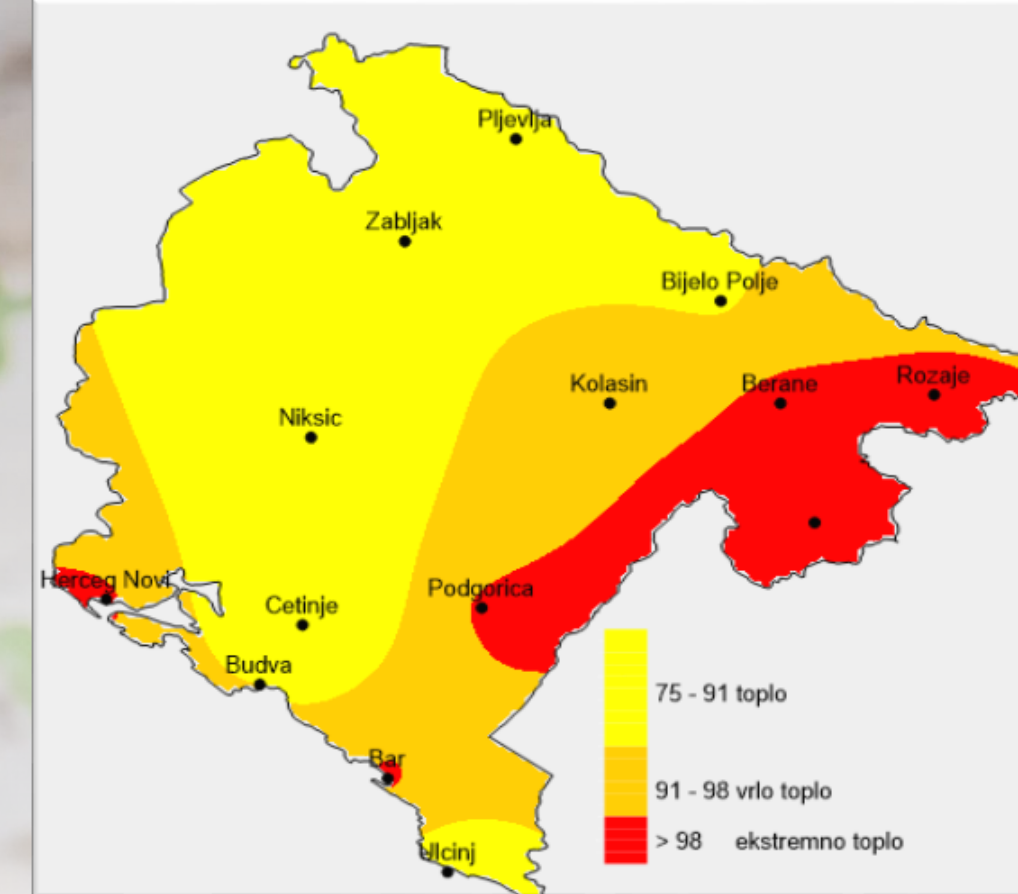
Compared to 2022, last year (2023) was warmer in all cities, by 0.9°C in H.Novi to 2.2°C in Bijelo Polje, and in Podgorica by 1.2°C.

The highest daily soil temperature -August 9 at a depth of 2 cm and was 52.8 °C

The summer of 2024 is the hottest in all of Montenegro.

The air temperature is in the extremely warm category; the amount of precipitation is in the category of very dry, dry and normal.

Deviations from the climatic norm - from 2.4°C in Ulcinj to 3.6°C in Bijelo Polje.



Air temperature percentile distribution for 2023



Air temperature percentile distribution for summer 2024

MONTENEGRO NATIONAL DROUGHT PLAN

Ministry of Sustainable Development
and Tourism

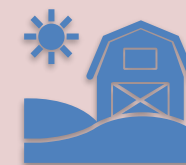
Government of Montenegro

November 2020

NATIONAL DROUGHT PLAN



Montenegro's drought management relies on the National Drought Plan, focusing on monitoring, risk assessment, mitigation, and coordination across sectors.



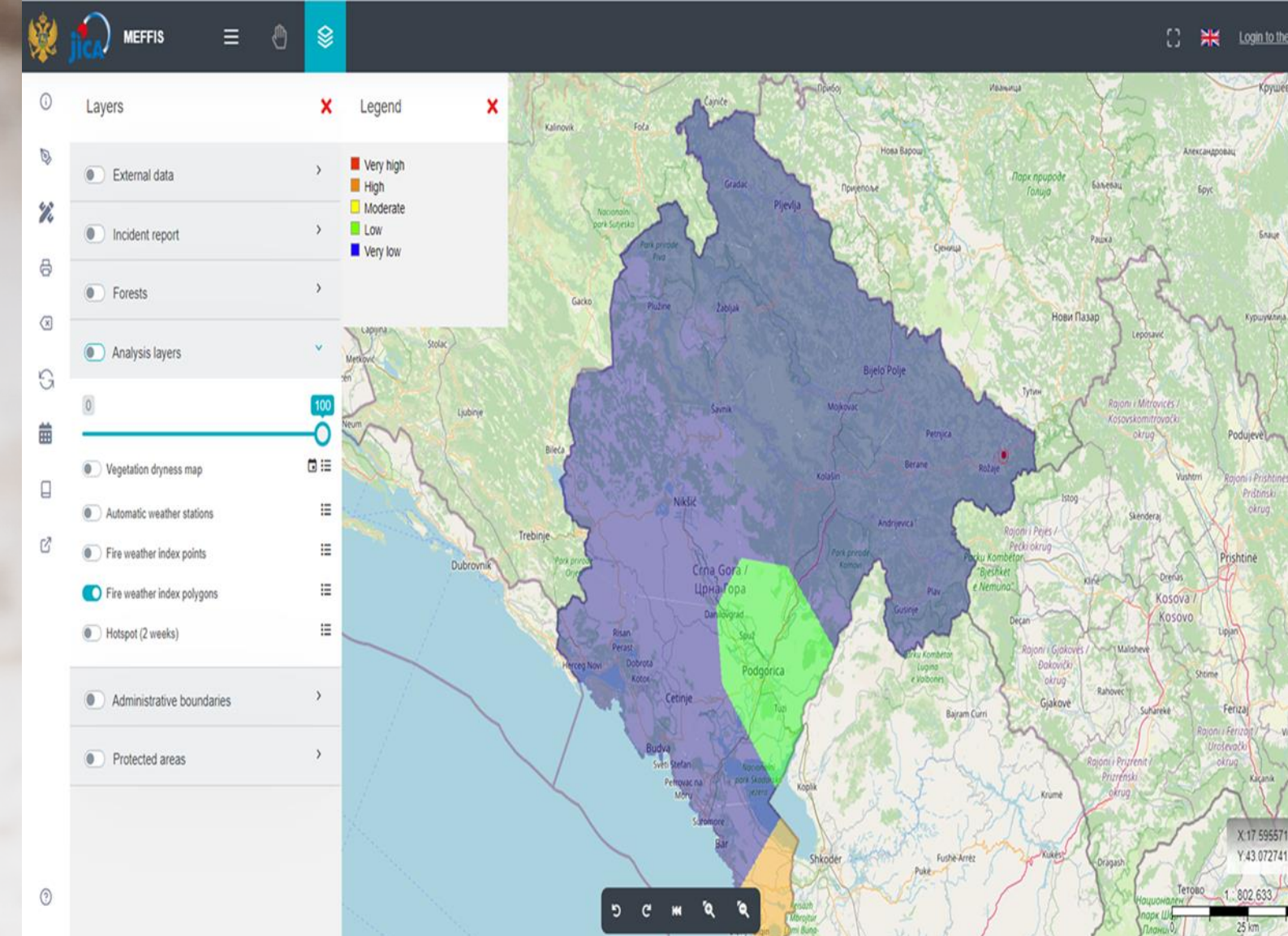
The main sectors affected by drought are agriculture, forestry, and water resources.

RECOMMENDATIONS

- Grants to farmers to diversify their crops and income sources; drought-resistant crop varieties
- Subsidizing the adoption of smart agriculture technologies like soil moisture sensors, weather forecasting tools
- Risk insurance

- National Information System for Forest Fires and disaster risk reduction based on ecosystem solutions (ECO-DRR)

Capacity Building Project for Disaster Risk Reduction through the National Forest Fire Information System (NFFIS) and Ecosystem Based Disaster Risk Reduction (ECO-DRR)



RECOMMENDATIONS

- Investments in water-efficient irrigation systems, such as drip or sprinkler irrigation (Plantaze)
- costs estimated to range between 1,100 and 1,900 EUR/ha
- educational programs and trainings

Approximately 10.78% of total agricultural land under irrigation (5,204.2 ha). 12,518 agricultural holdings practicing irrigation, averaging 0.42 ha per holding.
Primary sources: underground water and surface water.

Vineyards - **96%** of the total grapevine cultivation area
0.11% of the total meadows and pastureland.



Building micro-reservoirs can be a viable strategy to cope with fires and water shortages in livestock and crop production.

Plantaze Vineyard- Montenegro

- 22 mln kg of grapes per year, more then 16 mln bottle products annually in over 40 countries of the world
- Total 2,300 ha has been entirely covered by an irrigation system, using water pumped from 23 wells
- Sprinkler and drip irrigation system
- 15 mln cubic meters of water to maintain plantations
- Smart irrigation, installation of meteorological station on the area, sensors for measuring soil moisture
- Mobile and web applications
- Digitalization of the irrigation system for pilot area of 167ha.





Thank you!

“Drought is a natural hazard but does not have to lead to human disaster. The solutions are available, and we can create a drought resilient world ambition, harnessing the political will, and joining forces to act together.”

Ibrahim Thiaw, Executive Secretary, United Nations Convention to Combat Desertification

For any questions, please refer to: biljana.kilibarda@meteo.co.me