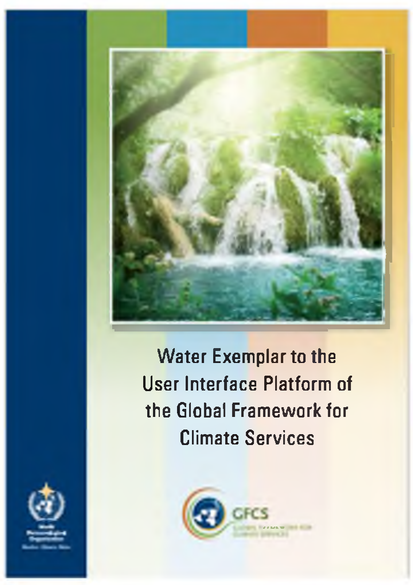
ADAPTATION MEASURES TO CLIMATE CHANGE IN WATER RESOURCES MANAGEMENT

Goptsiy Maryna , PhD, Ovcharuk Valeriya, Sc.D., Prokofiev Oleg, PhD
Odessa State Environmental University, Ukraine

Introduction

Today, at the international level, an approach such as the Integrated Water Resources Management (IWRM) is envisaged as a way forward for effective, equitable and sustainable development and management of the world's limited water resources and in order to meet conflicting demands.

When implementing IWRM, water authorities and their experts should be aware of the response of a particular water regime to human intervention and climate change in hydrological regimes and watercourses, including changes in land use, changes in water use, construction and management of dams and dams, and changes in interactions fresh and ocean waters, and be able to regulate these modes. The world community has developed standard methods for assessing and managing water-related risks, based largely on the ability to monitor and reproduce the environment on a variety of spatial and temporal scales. The functioning of the observation network on all water bodies and the general use of these observations is a key point for informed decision-making in the field of water resources management and minimization of negative consequences.



Analyses

Existing water management methodologies, including the development of engineering structures, are generally based on the concept of stationarity of historical time series, which are extrapolated to the future, and the concept, which does not operate in climate change and adds additional uncertainties, especially to hydrometeorological extremes (floods and droughts).

To improve water management through the use of climate services, it is important to define the task and type of service, including climate forecasting products, seasonal indicative climate forecasts, downscaling products at different levels and various downscaling methodologies that describe assumptions and uncertainties. This requires the establishment of professional relationships between climate service developers and water managers at the scientific and operational levels.

Key Findings

The plan of the Water User Interface Platform (Water UIP)[1] provides a general framework for building partnerships and leadership, developing guidelines for the water sector, and opportunities to support and strengthen the decision-making process based on the use of climate information.

The main tasks in the implementation at the national level of the Water UIP should cover the following:

1. Identify the optimal methods for obtaining FEEDBACK from these communities on the usefulness and performance of climate services from the water community in support of IWRM.
2. Build DIALOGUE between users of climate services and information in the water sector and those responsible for the observation, research and information system components of the Framework.
3. Develop MONITORING AND EVALUATION measures for the Framework that may be agreed to between users and providers.
4. Improve CLIMATE LITERACY in the user community through a range of public education initiatives and on-line training programmes. In many instances there are opportunities for the better use of climate services, which are not taken up because of lack of awareness of their availability or capability.
5. Improve WATER LITERACY of climate service providers: strongly related to the dialogue aspects above, climate service providers need to better understand the decision-making context of water managers from different fields of application.

Conclusions

The connection between the weather and climate and the terrestrial water cycle, including the freshwater-ocean interface, appears fundamental, and thus a high level of synergy should exist between the disciplines involved. However, there are problems that are primarily related to the functions of the scale of operations, in water management operations are carried out at the scale of the basin, and meteorological information is usually available on a broader basis and in different spatial scales.

The main idea is to work closely with water and climate management professionals to develop tools and systems to help effectively predict and provide information and warnings that will improve water safety and sustainability through a significant increase in the time available to those involved water resources management, decisions and response measures.

Within the framework of the project “Multilevel Local, Nation- and Regionwide Education and Training in Climate Services, Climate Change Adaptation and Mitigation”,619285-EPP-1-2020-1-FI-EPPKA2-CBHE-JP (11/15/2020 - 11/14/2023), that is being implemented at the Odessa State Environmental University, it is planned to implement some of the tasks listed above. In particular, at the moment, a survey of representatives of the water industry of Ukraine has been conducted, in which 52 respondents from 32 organizations took part. Further analysis of the questionnaires will make it possible to identify the needs of the water sector in climate services, which will serve as a basis for the development of adaptation measures and strengthening cooperation in integrated water resources management.

References

1. Water Exemplar to the User Interface Platform of the Global Framework for Climate Services / *World Meteorological Organization*, 2014. 54 p.