

Report of the national consultation workshop
on the National Framework for

Climate Services in the REPUBLIC OF MOLDOVA

26–27 June 2018

Radisson Blu Hotel,
str. Mitropolit Varlaam, 77, Chisinau, Moldova

Zoï Environment Network
July 2017

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Background

The Republic of Moldova receives support from the World Bank for the development of the National Framework for Climate Services (NFCS), which is aimed at strengthening the production, delivery and effective use of hydrometeorological and climate-related information. Partners supporting this process are the Global Framework for Climate Services (GFCS), the Global Facility for Disaster Reduction and Recovery (GFDRR), and the World Meteorological Organization (WMO). Zoï Environment Network, a Switzerland-based international non-profit organization specializing in environmental information, communication and capacity-building, provides hands-on support. The work is carried out in close cooperation with Moldova's State Hydrometeorological Service (SHS) and the Ministry of Agriculture, Rural Development and the Environment.

The consultation workshop to discuss the initial outline of NFCS in Moldova was held in Chisinau from 26 to 27 June 2018. The main objective of the meeting was to bring together the producers and users of climate information in Moldova with international organizations and experts to discuss climate services. Another objective was to share experience and perspectives of other countries. The consultation workshop lasted for 1 1/2 days (see agenda in Annex 1), and was followed by a roundtable dedicated to dialogue with the representatives of national mass media.

More than 70 participants took part in the event (see Annex 2), representing national, local and regional authorities (including the capital city of Chisinau, the autonomous territorial unit of Gagauzia, the Transnistrian region, and selected rural settlements), NGOs, academia, research and business. Users and producers of information were equally present.

The workshop included presentations on the status quo, gaps and needs in Moldova; showcased the main players and producers of climate-related information; collected feedback from the participants through a rapid survey ("blitz poll"); and held plenary discussions, question-and-answer sessions, and smaller breakout groups.

Discussions about the future of climate services in Moldova were based on the conceptual outline of the NFCS prepared prior to the meeting by Zoï Environment Network in cooperation with the SHS and the World Bank.

The National consultation workshop took place at the Radisson Blu Hotel in Chisinau, and the logistics of the event were organized and directly financed by the World Bank. Zoï Environment Network and the SHS were responsible for the content and organization of the event and for the facilitation of discussions.

Workshop content and discussions

The workshop was divided into several segments. The first was devoted to the Global Framework for Climate Services and the international perspectives on its development and implementation. The World Bank, the World Meteorological Organization and JBA Consulting presented the thinking, history and experience behind improving climate services worldwide, highlighted support provided to Moldova, and reflected on the experience of EU member state Romania.

The rest of the first day was dedicated to showcasing climate and meteorological services in Moldova, and to discussing how some of the existing gaps can be closed. Representatives of information producers (SHS, the Climate Change Office, the Institute of Genetics of the Academy of Science) were followed by users (the General Inspectorate of Emergency Situations, the Medical University, the Agricultural Business Association, several NGOs) who presented their perspectives.

Zoï Environment Network presented the results of in-depth interviews with information users. These interviews were carried out from February to April 2018, and have helped identify specific user expectations, needs and gaps as well as the possibilities for further developing climate-related information services in the country. The Slovenian Environment Agency presented Slovenia's experience with delivering climate-related information, with special attention to building effective communication with information users.

The second day offered participants broad opportunities to express their views and opinions concerning the future development of the National Framework for Climate Services in Moldova. Key recommendations, which were provided by the participants through discussions in the breakouts and during plenary sessions, are summarized below in relation to priority areas suggested in the NFCS conceptual outline.

Priority area **1.** **BRINGING IN THE USERS**



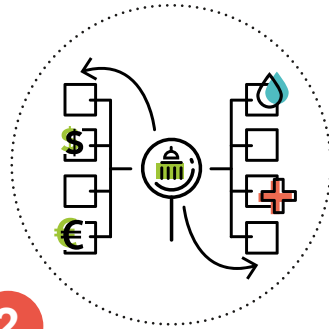
Meeting the needs of different stakeholders requires tailored approaches, and dialogue with users is key to producing high-quality products and services. The purposes of this dialogue include raising user awareness, educating users, and identifying and helping shape the demand for information.

The dialogue should be maintained on a regular basis using the combination of online tools (surveys, polls, feedback forms, information bulletins) and offline approaches (seminars, training, bilateral meetings, publications) to

help sample user opinion and collect feedback.

Face-to-face meetings with users can be held several times a year, each time focusing on a different set of issues common to particular user groups (e.g. sector-specific issues).

Finally, users will appreciate clear and accessible online information about the cost of various information products and services and about the requirements for obtaining data and information free of charge.

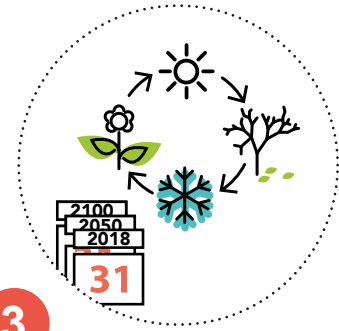


Priority area 2.
SHAPING GOVERNANCE & SUSTAINABILITY

Currently there is no official leading agency for climate-related information services in Moldova, while the SHS is seen as the main responsible body for the coordination and delivery of such information. Not having access to sufficient financial resources to ensure its sustainability and outputs, the SHS is currently under pressure to earn additional income. At the same time, some users are not pleased that raw data are not always openly accessible, while others require specific information products that currently are not produced.

Today, the related processes and procedures are not clearly defined. There are uncertainties about the costs of climate-related information services and about the certification of, and data exchange with, the providers of meteorological data operating outside the SHS. The relationships among the various stakeholders need to be clarified in the newly developed cooperation mechanisms for the NFCS, which then needs to be approved legally. The improved legal and normative base should help ensure the financial sustainability and legally binding responsibilities for providing such services, and should clearly define the division of responsibilities and tasks.

An additional capacity limitation that was brought up in the discussions is the lack of qualified specialists entering Moldova's hydrometeorological job market. Universities in Moldova no longer offer degrees required by the hydrometeorological sector. Dialogue with academia and training in relevant topics should thus be reestablished, and done with due consideration to modern international educational standards, including those recommended by WMO.



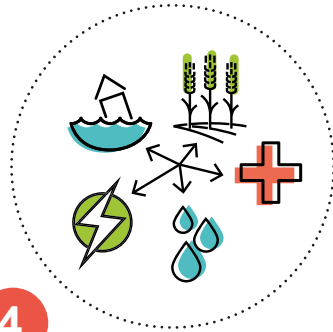
Priority area 3.
PROVIDING SEAMLESS SERVICES

Different users need different types and scales (temporal, spatial) of information, including:

- short-term meteorological and hydrological forecasts, which are the direct responsibility of the SHS;
- long-term climate information, for which other players or organizations should be involved.

At the same time, not all potential users understand the need, value and possibilities of getting specific climate-related information, and the full demand for information at various scales is yet to be created within specific user groups.

In particular, local promotions are needed to make local users aware of the opportunities while mass media efforts may reach potential users at different scales.



Priority area

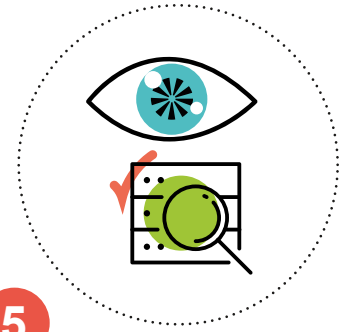
4.

ADDRESSING PRIORITY SECTORS

All GFCS priority sectors presented in the conceptual outline are considered relevant. Participants suggested that forestry could be added to agriculture and food security, and biodiversity to water, and that roads, transport and infrastructure could be an additional sector.

Key sectors such as agriculture and forestry may need more attention with respect to the development of tailored, scale-specific climate information products. Specific products may need to be developed for the health sector, too (e.g. correlations between climate change and various diseases), and with respect to alternative energy (e.g. related to wind power). Legal requirements could be strengthened in building codes and in regulations for the “climate-proofing” of new projects similarly to how it is being done with respect to EU investments in its member states. Needs of the insurance industry should be discussed as well.

Involving different actors in intersectoral cooperation is important, as stronger intersectoral cooperation can improve existing data flows. For disaster risk reduction, a comprehensive cross-sectoral risk analysis would be important in order to customize and fine-tune climate-related information products and improve their use in decision-making. In hydropower, the need was also identified to help improve cross-border flows of hydrometeorological data.



Priority area

5.

ENSURING VISIBILITY TO DECISION MAKERS

Decision makers and mass media are among the key target groups for NFCS communication activities. Decision makers at all levels should be clearly informed about the benefits and the needs of climate-related information services, and about how to address and support them. Information campaigns about climate services, the use of an evidence-based approach (demonstrating the added value of different types of information), and adequate financing will improve the chances of success in raising awareness and visibility.

Further details of the discussions in breakout groups are presented in Annex 3.

Results of the blitz poll

Complementing the in-depth interviews with information users carried out prior to the workshop, a rapid survey was conducted with workshop participants during the first day of the event (see Annex 4).

Among the 39 respondents to the survey were representatives of such sectors as agriculture, water management and water supply, public health, disaster risk reduction, energy, land management, transport and infrastructure, municipal services and local authorities, hydrometeorological services, education, and mass media. The majority of the respondents (85%) represented governmental agencies on the national level.

Respondents stated that their main sources of climate-related and hydrometeorological information were the SHS (42%), various websites (35%), and TV and radio channels (12%). Less than 1% of the respondents use mobile applications and other sources.

The majority of the respondents are satisfied with the quality of the available information. Users would like to see information tailored to their needs, including forecasts with higher precision as well as geographically localized forecasts, and additional services such as information about solar radiation and wind patterns. In 57% of the responses, users expressed readiness to pay for services. Those not willing to pay believe that the costs are the responsibility of the government.

Media roundtable

The roundtable brought together representatives of the Moldova mass media and the State Hydrometeorological Service. The discussions highlighted and reflected upon SHS activities and available information channels, the needs of the mass media, and the experience of

Slovenia in building climate communication among the producers and the media users of hydrometeorological information. The roundtable helped produce a set of recommendations for how interactions between the SHS and the mass media can be further improved (see Annex 5).

Feedback from workshop participants

Participants highly appreciated the workshop: 73% considered it “very good”, and 71% of those who completed an evaluation wants to be engaged in the follow-up. They stated that the workshop was constructive and that such events should be organized again. The highest rating for the sessions was given to breakout groups (58% considered that part “very good”) and to the discussions and question-and-answer sessions in the plenary (see Annex 6).

Participants considered Information presented during the event relevant, useful and up to date, although a few commented that there should be even more discussions with users, and less scientific and more practical information.

Logistical arrangements were highly appreciated with 41% rating them as “good” and 59% as “very good”.

ANNEX 1

Agenda of the consultation workshop and the media roundtable

Moldova's National Framework for Climate Services (NFCS) National consultation workshop Agenda

Chisinau, 26 – 27 June 2018
Radisson Blu Hotel • str. Mitropolit Varlaam, 77

26 June SETTING THE SCENE

9:30 Registration and welcome.

WELCOMING COFFEE

10:00 Opening and introduction

Welcome (Veronica Lopotenco, Ministry of Agriculture, Regional Development and the Environment; Violeta Bălan State Hydrometeorological Service; Daniel Kull World Bank; Filipe Lúcio, World Meteorological Organization)
Introduction of participants (tour-de-table)

10:30 International perspective

Keynote: What is the Global Framework for Climate Services (Filipe Lúcio, World Meteorological Organization)
Support of hydrometeorology and climate services in Moldova (Daniel Kull, World Bank)
National frameworks I: EU country experience and “Verification and QMS for SHS Moldova” Project (Daniela Radulescu, JBA Consulting, Romania)
Discussion

12:00 Blitz-poll among users and producers of climate data, information, products and services

12:30 LUNCH

13:30 Status quo and closing gaps

Keynote: Climate and hydrometeorological information, products and services in Moldova (Violeta Bălan, State Hydrometeorological Service)
What Moldova's users think and want: results of a selective survey (Ecatarina Melnicenco, Zoï Environment Network)
Targeted perspectives on climate service use and value adding (Anatolie Puțunică, Cătălina Croitoru, Ivan Guci, Oleg Rotari)
Discussion

15:30 COFFEE BREAK

16:00 Status quo and closing gaps (continued)

Civil protection and climate change. Past, Present and Future. (Alexandru Oprea, General Inspectorate for Emergency Situations)
Current climate, climate change scenarios, risk factors and the potential impact of climate change in the 21st century in the Republic of Moldova. (Lilia Țăranu, Climate change office)
National frameworks II: improved communication for delivering climate services (Tanja Cegnar, Slovenian Environmental Agency)
The needs of climate information for prediction of crop diseases and pests development (Vladimir Todiras, Institute of Genetics, Physiology and Plant Protection, Academy of Sciences of Moldova)
Discussion

19:00 JOINT DINNER

27 June (BRAIN)STORMING THE FUTURE

10:00 Brainstorm

Conceptual outline of the development of NFCS in Moldova (Nikolai Denisov, Zoï Environment Network; State Hydrometeorological Service)

10:30 – 10:45 COFFEE BREAK

Breakout groups to discuss key elements of the outline (Moderators: Dan Titov, Ecaterina Melnicenco, Iordanca-Rodica Iordanov)

12:30 Reflections and closure

Presentation and discussion of results

Reflection on the discussion (SHS, Ministry of Agriculture, Regional Development and the Environment, WMO, World Bank)

Closure of the workshop

13:30 LUNCH

Moldova's National Framework for Climate Services (NFCS) Media round table Agenda

Chisinau, 27 June 2018

Radisson Blu Hotel • str. Mitropolit Varlaam, 77

27 June

13:00 – 14.00 Registration and LUNCH

14.00 Opening and introduction

Welcome (World Bank, World Meteorological Organization, Zoi Environmental Network)

Introduction to the topic (Tanja Cegnar, Slovenian Environmental Agency)

Climate as a natural resource, why climate is important? How climate services can help the society and enable society prosperity

Introduction of participants / icebreaker (tour-de-table)

14:30 Presentation of State Hydrometeorological Service

Presentation of the SHS, objectives, goals

Presentation of the services provided, upgraded website of SHS

15:30 Reporting about weather and climate

Moderator: Tanja Cegnar

Why it is important to explain and report about climate, climate change and climate services including examples of benefits they bring to the society

Media relations in hydrometeorology

16:00 Coffee break

16:20 Media relations in hydrometeorology

Moderator: Tanja Cegnar

16:45 Discussion, conclusions and remarks

ANNEX 2

List of participants

Name, Surname	Organization
Veronica Lopotenco	Ministry of Agriculture, Rural Development and Environment
Liliana Carp	Ministry of Health, Labor and Social Protection
Vitalie Cozmolici	Ministry of Internal Affairs
Violeta Bălan	State Hydrometeorological Service, Deputy Director
Lidia Treschilo	State Hydrometeorological Service
Ghenadii Rosca	State Hydrometeorological Service
Tatiana Utina	State Hydrometeorological Service
Dan Titov	State Hydrometeorological Service
Ecaterina Titova	State Hydrometeorological Service
Valeriu Cazac	State Hydrometeorological Service
Valentiva Ceres	State Hydrometeorological Service
Maria Aarii	State Hydrometeorological Service
Aliona Isac	State Hydrometeorological Service
Sima Plamadeala	State Environmental Inspectorate
Alexandru Oprea	General Inspectorate for Exceptional Situations
Rubina Bubuic	General Inspectorate for Exceptional Situations
Mircea Migherea	Agency for Energy Efficiency
Valentina Zagnitco	National Agency for Public Health
Serghei Eremeico	State Agency Anti-hail Service, Deputy Director
Ion Panciuc	EHGeoM
Dumitru Galupa	Moldsilva Agency
Căpățînă Sergiu	State Administration of Roads
Anatolie Gavriiliuc	State Enterprise "Costesti Stinca"
Pavel Pascalu	City hall Chisinau
Ana Ciolac	Gagauzia
Larisa Voloh	Local authorities, village Palanca
Vasile Gorceac	Giurgulesti Harbor
Boris Gherman	Dubosari hydro-electric power station
Leonid Vidiborschi	Moldavian Air Traffic Services Authority
Lilia Țăranu	Climate Change Office
Stela Drucioc	Climate Change Office
Vitalii Kolvenko	Transnistria, Hidrometeo
Ivan Guci	Association of the hazelnut producers of the Republic of Moldova
Viorica Cutitaru	Agency for Local Development South

Eugen Revenco	NGO ACSA
Ilya Trombitsky	EcoTiras NGO
Oleg Rotari	Ormax NGO
Vladimir Ursu	Renasterea Rurala NGO
Iordanca-Rodica Iordanov	EcoContact NGO
Tatiana Cocias	EcoContact NGO
Rodica Cojocari	Institute of Geography and Ecology
Vladimir Todiras	Institute of Genetics and Plant Protection
Tatiana Ciolacu	Institute of Pedology, Agrochemistry and Plant Protection
Catalina Croitoru	Medical University
Vasile Grama	Polytechnic University
Anatolie Putuntica	Tiraspol University
Petru Lozovanu	Technical University
Daniel Kull	World Bank
Filipe Domingos Freires Lucio	World Meteorological Organization
Daniela Radulescu	JBA Consulting, Romania
Iulia Iordachi	FAO, Moldova
Silvia Pana-Carp	UNDP Moldova
Mihail Tcaciuc	OSCE Mission to Moldova
Svelana Zhekova	EU High Level Adviser on Environment, High Level Advisers Mission to the Republic of Moldova
Cristina Cotofana	Assistant of EU High Level Adviser on Environment, High Level Advisers Mission to the Republic of Moldova
Virginia Bilici	Programme officer, Swedish Development Agency
Nickolai Denisov	Zoï Environment Network
Tanja Cegnar	Slovenian Environmental Agency
Ecaterina Melnicenco	Zoï Environment Network
Gherman Bejenaru	Zoï Environment Network
Lucia Tauat	TVM1
Serghei Plosnita	AgroTV
Alex Nistriuc	Agro TV
Nikolai Nichiforov	IP CPG, Moldova
Svetlana Morarenco	Interpreter
Maliovana Tatiana	Interpreter
Octavian Borodin	Interpreter
Natalia Ciumacenco	Interpreter

* The prefix for international calls to Moldova is +373, the first zero in the national / local phone number is then omitted.

ANNEX 3

Summary record of the discussion in breakout groups

Group 1

Participants:

- General Inspectorate of Emergency Situations
- Center of Public Health
- Academia (State University)
- Research (Institute of Ecology and Geography)
- Local public authorities (village, town)
- FAO
- Road Agency
- Energy Efficiency Agency
- NGO

AREA 1: BRINGING IN THE USERS

Access to data is very important to users. Some need raw data for research, while others need processed analytical results. Types of required deliverables should be discussed with users in advance. (For instance, some specific users may be looking for additional data on solar activity, atmosphere transparency and magnetic storms). Changing demand and economic activities and improvements in analytical and research methodology are likely to lead to data products becoming more complex. Verified and validated research and data collection methods are important to the development of high quality products.

Collecting feedback and identifying user needs should be done on a regular basis. A combination of two online and offline methods will give good results:

- online thematic questionnaires with the option of leaving feedback are good for users who regularly work on the Internet;
- information seminars for people not actively using the Internet can combine promotion, collection of feedback and the assessment of needs.

Offline feedback solutions may be more efficient for the important task of assessing the quality of services, particularly with respect to data analysis.

Users need to understand what information is available or can be produced, and how this information can help in activities they perform in their economic sectors. Raising awareness of users and potential users about climate-related information and services is a useful direction to pursue.

One problem is the lack of specialists in the field. Re-establishing dialogue with the educational and scientific organizations and reintroducing university degrees in hydrometeorology are important steps. Related problems include the current requirements of a minimum of 15 students for a specialization, and the challenge of finding a decent job after graduation. For a hydrometeorological specialization, the minimum number of students may be too high, and graduates who cannot find a job domestically may have to leave the country to pursue their careers.

AREA 2: SHAPING GOVERNANCE AND SUSTAINABILITY

The existing laws covering meteorology and climatology need to be modified to include climate-related information services. The main proposal is to put the SHS in the leadership role, or alternatively, the newly established Environment Agency – a decision that should be based on the outcomes of a functional analysis. The legal basis should be clear with respect to all aspects of information management, procedures and payment for information. The current law does not provide clear guidance.

Establishing clarity on the allocation of funds is very important. The main part of the budget for climate services should come from the state budget. The SHS or another responsible body should provide information to state actors and programmes at no cost, and to private enterprises on a sliding scale related to their incomes and their uses of the information (methodology to be elaborated). Payments by scientific institutions and NGOs would be at cost if the user has external funding, and at no cost for research, unpaid analytical work, etc.

The group discussed the installation of weather stations by operators other than the SHS. (Moldova already has cases of agricultural producers installing their own stations.) The group identified the need for clarity about the official authorization process and data ownership, and for clear guidelines about who can do it, where the station can or should be located, how to send data to the SHS, who will be the data owner, etc.

AREA 3: PROVIDING SEAMLESS SERVICES

Currently, the SHS provides early warnings free of charge to a number of institutions – the General Inspectorate for Emergency Situations, the Moldova Waters Agency, the Public Health Agency, local authorities and others. The recipients are then responsible for further disseminating the alerts through their systems. The Agency for Agriculture and Rural Development provides climate-related information for agricultural purposes, including early warnings, to subscribers for a fee based on their subscription. A legal framework needs to be developed with the clear definition of roles and responsibilities for early warnings. Effective outreach requires an investment in infrastructure as well as clear mechanisms for communication and for educating people on what the information means and how to respond in different circumstances.

Medium-term forecasts are not detailed enough to be a basis for decision-making, but if the SHS wants people to be able to use such information, they need to tailor the products to specific needs.

AREA 4: ADDRESSING PRIORITY SECTORS

The group agreed with the five priority sectors, and suggested adding water and biodiversity.

AREA 5: ENSURING VISIBILITY TO DECISION MAKERS

The rationale for the NFCS should clearly explain to potentially interested parties why it is needed, with a special emphasis for decision makers at all levels so that they understand the value of the framework. Information campaigns about climate services, establishing feedback mechanisms, the use of an evidence-based approach, and adequate financing will improve the chances of success of visibility actions.

Group 2

Participants:

- Moldova Waters Agency
- Public Health Agency
- Ministry of Interior
- State Hydrometeorological Service
- Slovenian Environment Agency

AREA 1: BRINGING IN THE USERS; AREA 3: PROVIDING SEAMLESS SERVICES

Because user needs for information vary in terms of type, level of detail, presentation and other ways, the identification of potential users and an assessment of their needs are crucial first steps. Marketing agencies or other specialized organizations can conduct online or offline surveys or arrange focus groups to collect user feedback.

An information platform for users should be easy to access and use, and should accommodate the range of user needs – from information in a simple form to the more comprehensive and detailed information related to scientific research. Users should be able to get what they are looking for fast.

The NFCS should establish a permanent dialogue with different types of users through training and roundtables that take a participatory and interactive approach. Unfortunately, cooperation among the different ministries and their subordinate organizations and even within the same ministries is often weak. It is also difficult to get financing for events to be conducted by governmental organizations. This complicates the prospect of a permanent dialogue with users.

Some potential users need promotional information such as short fact sheets and online videos, and for others, short informational events can be effective. People cannot use information they are unaware of, and many people think that the SHS only provides forecasts. Yet the SHS presents information on TV and radio, and operates a website. The majority of people aware of the website mainly check the weather forecast. Users do not

make full use of SHS information not because they do not like it or because it does not correspond to their needs, but simply because they do not know what information is available. At the local level, many simply do not even know that SHS exists. But from the financial point of view the SHS cannot afford local promotions, and may need to rely on the supervising ministry to provide this service.

Many TV channels take information from the Internet without mentioning the source, and the information they broadcast may not be correct. The SHS has proposed contractual relations with media companies, as the weather forecast is usually broadcast during prime time and can reach large numbers of people. Many media companies have declined. One way to overcome this could be introducing legal accountability for information not only for the SHS, but also for the mass media.

AREA 2: SHAPING GOVERNANCE AND SUSTAINABILITY

Discussions of governance and sustainability may be premature until permanent dialogue with users has been established. A responsible organization on the national level is needed to play the key role, but currently it will be difficult for the SHS to take responsibility. If no other organization with similar tasks is able to do it and the SHS does not take responsibility, another player will need to be identified.

Discussions of how responsibilities should be divided may also depend on establishing dialogue with users. The SHS currently counts on the support from international partners such as Zoï Environment Network to advance in this direction.

AREA 4: ADDRESSING PRIORITY SECTORS

The priority sectors for Moldova are agriculture and food security, disaster risk reduction, energy, water and health. In this respect, the group agrees with the formulations in the NFCS conceptual outline. To identify needs, priorities and possibilities in each sector, a regular dialogue should be established with the sectors.

AREA 5: ENSURING VISIBILITY TO DECISION MAKERS

A permanent dialogue with decision makers in the political, financial and legal domains is necessary. Unfortunately, decision makers do not come to such events as roundtables and seminars, so other formats are needed. The support for dialogue by international organizations may make decision makers more likely to hear the SHS. Working with the mass media may also encourage the dialogue. Showing politicians the advantages and benefits of the NFCS through practical examples of using information to prevent or reduce damage may be convincing. All in all, a comprehensive dialogue is needed with the different groups of users (politicians, mass media, individual users) to understand their needs and draw out possibilities to process, produce and deliver more and better information.

Group 3

Participants:

- State Hydrometeorological Service
- Hydropower
- Agency for Agriculture and Rural Development
- Forestry
- Local authorities (Autonomous territorial unit of Gagauzia)

**AREA 1:
BRINGING IN THE USERS;
AREA 2:
SHAPING GOVERNANCE AND SUSTAINABILITY;
AREA 5:
ENSURING VISIBILITY TO DECISION MAKERS**

The group discussed a tailored approach to working with users, based on a direct contact with key organizations in each of the target sectors to better understand sectoral needs, and on regular consultations with users. Users from different sectors can be invited to different consultations or feedback meetings, which can be held several times a year. Thematic clusters of users could be organized to focus the discussion and engage the participants more strongly.

Weather and hydrological forecasts come not only from official SHS sources. Users often rely on information from available online resources. This situation becomes more problematic when mass media broadcast forecasts that are not produced by the SHS, but users nevertheless blame the Service when the information is not accurate. The SHS should develop a strategy for working with users to address this issue on a permanent basis. Another important aspect is user education. There should be clear explanations of what short-term and long-term forecasts really are, and what the probabilities mean.

**AREA 3:
PROVIDING SEAMLESS SERVICES**

Users need different types of information:

- short-term meteorological and hydrological forecasts, which are a direct SHS responsibility;
- long-term climate information, which should involve other players and organizations.

The SHS can provide primary weather data, but further analysis of impacts and relationships should rely on sector-specific information as well. Explaining how high temperatures may influence plant species, for example, or the use of advanced research and modelling techniques may require cooperation with other partners.

For long-term forecasting, the SHS needs to understand what information is required and what form the information should take. On the demand side, the dearth of strategic planning on the national level makes addressing operational matters difficult.

**AREA 4:
ADDRESSING PRIORITY SECTORS**

The group agreed with the priority sectors in the NFCS conceptual outline, suggested adding forestry to agriculture and food security, and biodiversity to water, and proposed that transport and road infrastructure be added as additional priorities. The group noted that addressing disaster risk reduction properly would require a comprehensive risk analysis for all sectors. In agriculture, for example, the decision makers should refer to risks identified in relation to long-term climate forecasts; this will eventually be the basis for taking decisions.

In hydropower, the group identified the need to help improve the cross-border flows of hydrometeorological data. (In the specific case of the Prut River, data from Romania do not reach sectoral users in Moldova fast enough and sometimes raise questions in terms of data quality.)

Improving the climate resilience of infrastructure may require the review of building codes and regulations so that the consideration of climate change becomes an integral part of construction projects. To that end, building codes and regulations could be strengthened with provisions for “climate-proofing” of new projects in a way similar to the approach taken by EU investments in the member states.

ANNEX 4

Summary of the rapid survey of workshop participants

Notes: Some respondents provided multiple responses, hence the numerical scores should not be added. Similar narrative answers have been grouped.

The role and the place of the respondent in the information chain

Issue	Number	Comment
Production of primary hydrometeorological and climate data	15	---
Production of information products based on primary data	21	Inventory progress, fuel consumption, environmental policies for transport
Specialized processing of information for specific asks and users	16	---
Use of primary data, namely for...	14	Meteorological maps, weather forecasts, hydrometeorological studies and forecasts, assessments of impact on health, environmental studies, renewable energy, agriculture, research and education
Use of aggregated information, namely for...	12	Meteorological radar data, storms, wind, drought information, hydrometeorological studies and forecasts, climate research

Respondents' sector

Sector	Number	Comment
Agriculture	8	Crops and horticulture
Water supply and water management	6	---
Public health, labour protection, social security	4	---
Disaster prevention and response	5	---
Energy, including local renewable energy	6	---
Land transport and infrastructure	4	---
Urban and municipal services	3	---
Hydrometeorological science and services	9	---
Insurance	0	---
Education	5	---
Mass media	2	---
Other	2	Aviation

Respondent's organization

Type of organization	Number
National government	12
Other state organization	22
Municipal authority	1
NGO	3
International organization	1
Private sector	1

1. What kind of information do you use in your activities?

Type of information	Number
Meteorological	33
Hydrological	26
Climate-related	18
Other	4

2. What do you use the information for, and what is the practical reason for the use of this information?

Flood prevention, flood risk forecast, assessment of disaster consequences; practical use in disaster prevention, decision-making during emergencies, efficient resource distribution during weather emergencies, planning of involvement of intervention forces, disaster prevention to ensure the safety of wind turbines and reduce damage to agriculture, landslide forecasts, hail protection

Predict and calculate expected harvest in experimental plots, longer-term use by agronomists, daily and weekly forecasts for planning work in the field (plowing, soil cultivation, harvesting), avoiding adverse effects in agriculture (frost, drought, flooding, other), short-term forecasts for irrigation and the application of fertilizers

Public health impact evaluation, epidemiological risk as a consequence of climate change, identification of climate change adaptation tools for health services and individuals

Inventory of fuel consumption, environmental policies in the transport sector, estimation of traffic conditions (especially in the winter), informing drivers, civil navigation security

Analysis and briefing notes, drafting recommendations and proposals for the Government, recommendations and information for local public authorities

Identifying vulnerabilities to climate change, climate disaster and hazard prevention, adaptation to climate change highlighting climate risks to forest vegetation in order to decrease the negative impacts

Research and analysis, general overview of meteorological conditions in Moldova; territorial assessment for mapping; calculation of complex meteorological and climate indices; calculating various climate indicators; monitoring of seasonal, annual and multiannual dynamics; groundwater monitoring; research in the field

Education, integration of data into subjects related to geo-information technologies, climate change projections and forecasts for students

Public awareness, warning about possible risks

Provision of services, project development, joint projects

For internal use, weekly or monthly reviews for private purposes, work travel scheduling

3. What are the main information sources used?

Main sources	Number
Hydrometeorological Service directly	31
Web pages (specify)	25
TV (specify)	6
Radio (specify)	3
Mobile apps (specify)	5
Newspapers (specify)	0
Other (specify)	2

Specified items: SHS, WHO, meteo.md, Ukraine's Hydrometeorological centre, meteoromania.ro, gismeteo, meteo2.md, jurnal.tv, aee.md, biomasa.md, ventusky.com, dse.md, windy.com, TV, Teleradio-Moldova, Eco FM, weather-app, toolbar apps, social media, biostatistics, official information from the «SADIS» system, literature

4. How satisfied are you with the information provided?

Fully satisfied	17
Partially satisfied	14
Not satisfied	1

Comments: Would like to have access to the Prut River hydrological data in online mode; lack of relevant information on detecting exactly which sectors will be affected; information is not always accurate, sometimes or often forecasts do not match reality; lack of detail; we are OK with the free service, but the information is not in electronic format and we receive it only partially; we do not have free access to the information for correlation analysis of environmental health matters

5. What additional information would you like to receive?

- Close-in-time and accurate information
- More detailed information
- Online access in a timely and uninterrupted mode, actualized maps including cities and provided through apps
- More accurate forecasts including geo-location
- More detailed information per regions
- Would like to receive information in the on-line mode
- Solar activity, geomagnetic storms, transparency of the atmosphere
- Climate parameters for statistical analysis of health impacts
- Statistical data related to natural disasters in previous years
- Air temperatures for orchards, vineyards, cereals, sunflowers; soil temperature; evapotranspiration rate of the soil
- Historical hydrometeorological data (for free according to the principles of the Aarhus Convention)
- Information from Ukraine's hydrological posts on the Prut and the Dniester
- Periodic analytical reports and articles for different climatic zone of Moldova
- GIS thematic materials such as hydrography and polluted zones
- Climate services programmes launched at the national and the international levels
- This topic should also be discussed with SHS management
- Same information as before (through previous contracts)
- Depending on the ongoing projects
- I have access to all information needed

6. How do you want to receive the information specified above?

Delivery method	Number	Comment
Through e-mail	25	---
On paper	4	---
Through the website	20	---
Through mobile app	15	---
Other (specify)	2	Television

7. Is your organization willing to pay for meteorological and climatic information?

Yes	6
Probably, depends on what kind of information (please answer question 8)	9
No. It should be paid by other organizations (please answer question 8)	11

8. If you have answered «No» or «Probably» to question 7, please specify who in your opinion should pay for such services.

The Ministry. The administration. SHS. This is governmental responsibility. From the Government to local authorities.

Services provided by the state authorities should be free of charge (costs covered from the national budget), other customers should pay for the services. The Government is responsible to provide comprehensive and operative information for decision-making in other domains: agriculture, forestry, building, roads, etc. The basic information should be financed from the state budget. Historical information was already paid

for through taxes, so access should be free. Free for international organizations accredited in MD. Free for educational and research purposes through the Internet.

Specific information and services should be paid by the direct beneficiaries of these services. Service users. Customers. Our company. Our institute.

Grants (donor money)

Don't know

ANNEX 5

Suggestions for improving interactions between the SHS and the mass media

As an outcome of the roundtable with the mass media, several suggestions were made to further interactions between the media and the SHS.

1 Develop capacities of key SHS personnel in media communications, and introduce a new communications and media relations position within the SHS.

2 Develop an SHS communication and awareness raising strategy to guide all communication activities conducted by SHS, and develop an implementation plan that is adjusted annually.

3 Consider low-cost adjustments to online communications by the SHS:

- create a “news” section on the website to guide journalists to information on upcoming events;

- open at least one social media account (most national hydrometeorological services in the EU are active on Facebook and Twitter, platforms that can be the primary choices);
- prepare monthly information bulletins for the media and the public;
- publish fact sheets about available services and prices for potential users.

4 The SHS should strive to further develop networking relations with national hydro-meteorological services of other countries, and organize study visits and internships with the use of international and European funds.

5 Mass media should be encouraged and obliged to always indicate the source of hydrometeorological information they publish or broadcast.

ANNEX 6

Summary of the anonymous evaluations by workshop participants

Workshop segment	Useful / positive			
	not	not very	fairly	very
International perspective (WMO, the World Bank, JBA Consulting)	---	3	10	12
Status quo and closing gaps (SHS, in-depth user survey, selected user perspectives)	1	2	15	7
Status quo and closing gaps (Emergency Inspectorate, Climate Change Office, Institute of Genetics, Slovenia)	---	2	13	9
Future NFCS: work in groups	---	---	10	14
Reflections and closure	---	---	8	13
Discussions, questions and answers, individual talks	---	---	8	16
Usability of the information in future work	---	2	11	9
Willingness to participate in this process in the future	---	1	6	17
Logistics of the event	---	---	9	13
Overall evaluation of the event	---	1	5	16

Open-ended questions:

1. What did you particularly like? (*)
2. What did you not like very much, what changes would you suggest? (**)
3. Any other considerations, suggestions or comments? (***)

Comments

Some information was difficult to understand
Repetitive, I was looking for more specific and explicit information, scientific results and sources related to climate change
Like the key message: SHS is the monopolist, "give us financial support or we will have to sell data"
Clarify how competent the SHS is and what outputs it can provide
Involve competent local specialists
Prepare a report for meteorologists and organize capacity-building for them
We advise organizing periodic meetings with permanent users
Seminars like this are advisable for Ministries' representatives and local public authorities

Would like to take part in a specific workshop on information and visibility for people

Depends on beneficiaries, needs and motivation

All opinions were taken into account
Well-organized

Too many details, inefficient

* Useful information and many examples
Constructive discussion on interesting points
Presentations
Teamwork

** Working with focus groups

*** Appreciate that people were actively involved in discussions and that there were interesting aspects approached
Like the icebreaking at the beginning of workshop
Consider this an efficient workshop
This was a productive seminar
It is advisable to have more seminars like this
Positive opinion of the workshop, its structure, activities and future opportunities

REPUBLIC OF MOLDOVA National Framework for Climate Services

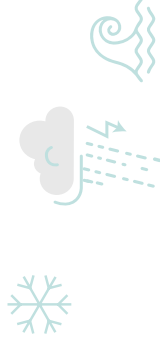
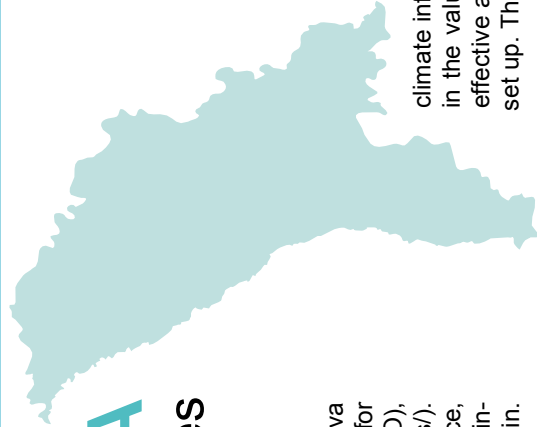
Conceptual outline

This outline is a basis for discussion of the design and priorities for establishing in Moldova a National Framework for Climate Services (NFCS) in line with the Global Framework for Climate Services (GFCS) promoted by the World Meteorological Organization (WMO), the World Bank, other participating organisations and countries (www.wmo.int/gfcs/). For the purpose of this discussion and in the spirit of 'seamless' information space, 'climate services' also include the provision of any weather and hydrological data, information and analytical products and services for their delivery across the value chain.

Moldova's key provider of hydrometeorological information being the State Hydrometeorological Service (SHS), the community of users and producers of climate information and services is nonetheless broader. The NFCS is thus expected to provide a coordination mechanism for addressing issues related to the production and application of climate services. It is to serve as a platform for promoting effective collaboration and cooperation among the various players in Moldova.

Already in 2008, the WB estimated that improving targeted delivery of climate information, including the development of user-focus products and services, can provide to Moldova during ten years over 70 million euros in benefits (imminent climate change will raise this amount yet higher). This was one reason for continued international support in this field over the last decade, including the current support to the conceptualization and establishment of a National Framework for Climate Services.

The discussion of this document will be followed by a full-scale development of the NFCS concept for Moldova, and – after its adoption – by its gradual institutionalisation and mobilisation of resources for bringing it to life.



According to the preliminary analysis carried out within the supporting project, as well as by other players involved in improving the delivery of climate information in Moldova, there are several clear gaps in the value chain which need to be closed in order for an effective and efficient Framework for Climate Services to be set up. These include the lack of:

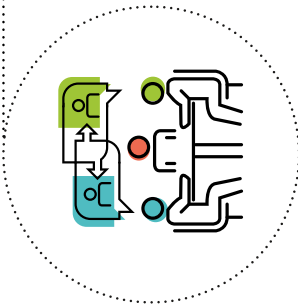
- *systemic approach* to strategic planning, which partially explains low demand for climate information in relation to national, sectoral and regional development planning;
- *users' willingness and capacity to pay* for classical climate products and services combined with the severe under-financing of the State Hydrometeorological Service and its obligation to provide funds to the state budget based on payment for non-core services;
- *interaction and integration among the various players* in the climate information value chain, complicated by the ongoing administrative reform which creates additional uncertainties with respect to the distribution of functions, mandates and the related finances;
- *imagination and experimentation* (including much missing legal and economic encouragement) for the development of new climate products and services, e.g. in the field of climate insurance, climate proofing, extended range of forecasts, on-demand delivery of data and services etc.;
- *users' participation* in the development of climate product and services, and their low awareness of what is available and what may be useful;
- demand for information related to *long-term climate trends*, projections etc. and their likely national, sectoral, regional and individual consequences.

Action priorities (overleaf) are proposed for discussion with the view to close some of these gaps.

Elements of the road map for implementing the NFCS in Moldova

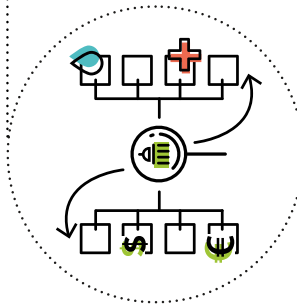
The priorities below describe groups of actions needed for building a workable and sustainable framework for further improved climate services in Moldova. They include both cross-cutting actions such as dialogue with users, strengthening governance, sustainability and visibility of the NFCS, and actions involving specific sectors or time scales.

1. BRINGING IN THE USERS



Interaction through 'user interface platforms' and similar mechanisms is a crucial element of any NFCS. It allows to 'reverse engineer' climate products, data and information from the first-hand understanding of what users really need and want. Moldova's NFCS dialogue platform will need to integrate users from various sectors, of different backgrounds and levels of capacity: from national authorities to individual farmers. Once established, such a platform will allow for regular sampling and monitoring of user feedback, collecting inputs for new climate products and services, and building capacities of users themselves to cultivate further demand.

2. SHAPING GOVERNANCE AND SUSTAINABILITY



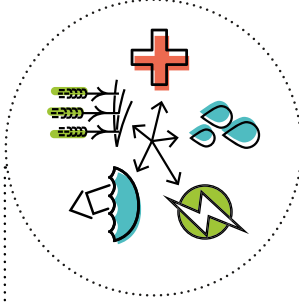
The structure and a clear governance mechanism of the NFCS will have to ensure that mandates of the various providers of climate services are well aligned and complementary, in order to optimally serve users along the value chain. A place for the framework will need to be found in Moldova's institutional and legal structure, and a mandate and resources established for minimal coordinating functions. For providing the services and sustaining key NFCS elements, including the State Hydrometeorological Service, other authorities, academia and non-state players, a transparent and realistic model of mixed financing made of state funding, payment for services, and international assistance will need to be implemented.

3. PROVIDING SEAMLESS SERVICES



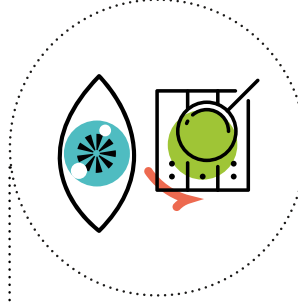
Different users have different scales of climate information they need: from nowcasting and short-term forecasting for emergency response, to seasonal forecasts for agriculture, to multi-annual projections of climate change for long-term planning. Information providers together should ideally deliver seamless services matching the various demands, by understanding what exactly users in Moldova want, who and how is able and willing to supply information at the required time scales, and how to build optimal interactions among them.

4. ADDRESSING PRIORITY SECTORS



The GFCS currently focuses on five sectors which are priority beneficiaries of climate services worldwide. These are Agriculture and food security, Disaster risk reduction, Energy, Water and Health. All these sectors are relevant for Moldova, although in different ways and to a different extent. The current challenge is to agree in which of the sectors the demand for climate information, products and services is the highest and crucial, and what opportunities do these sectors offer to develop new services through synergies and complementarity among the various players.

5. ENSURING VISIBILITY TO DECISION MAKERS



Continuously explaining the benefits of climate services and maintaining their visibility vis-à-vis decision makers making political, legislative or financial decisions is crucially important for the sustainability of the Framework. It may be helpful to organise an all-encompassing study of economic and other benefits of NFCS in Moldova, to systematically monitor the use of climate services and user feedback, to nurture successful cases, and to invest in communication and implementation of a systematic NFCS communication strategy for various target audiences.

