

First International Environment Forum for Basin Organizations

Towards Sustainable Freshwater Governance

UNEP, Nairobi, Kenya, 26-28 November 2014

Preparation of a Basin-Wide Vulnerability Assessment and Adaptation Strategy

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Bridging boundaries

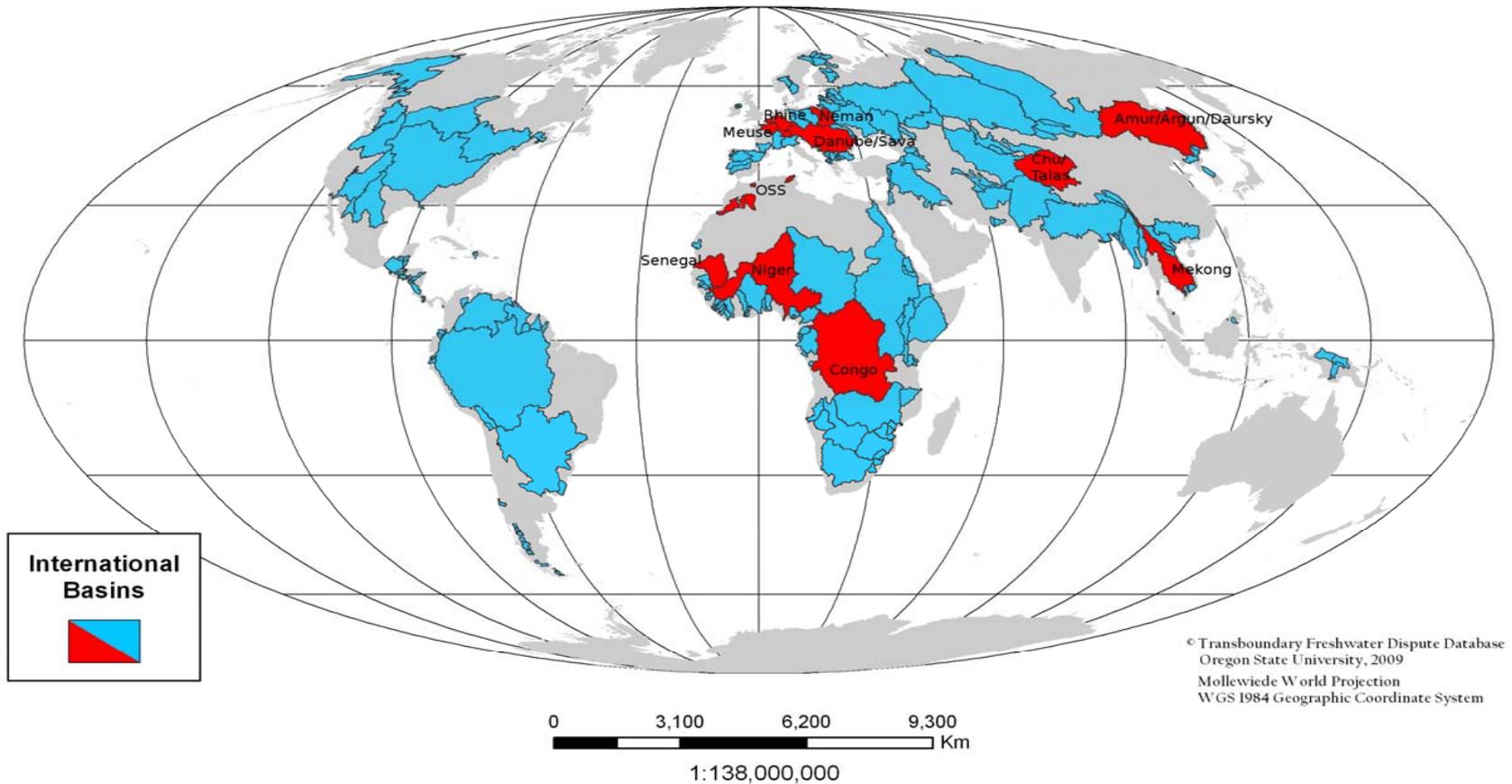
- ▶ **Why basin-wide cooperation in adaptation?**
- ▶ Prevent negative impacts of unilateral adaptation measures in riparian countries, thereby preventing potential conflict
- ▶ Enable more effective and efficient adaptation through:
 - Wider knowledge base
 - Larger planning space: take measures in the basin where they have optimum effect
 - Possibility to share costs and benefits
- ▶ → Transboundary/ basin-wide cooperation reduces uncertainty and costs!

Global Network of Basins: promoting cooperation on the ground and exchange of experience

- ▶ Global network of basins working on water and climate managed by UNECE and INBO:
 - Basins with different priorities (water scarcity, floods)
 - Currently 14 basins
- ▶ Platform for exchanging experiences:
 - Regular workshops (13-14 October 2014, Geneva) meetings of the Task Force and basin meetings
 - Internet platform
- Collection of good practices and lessons learnt on climate change adaptation in transboundary basins under preparation for next World Water Forum

Global network of basins working on climate change adaptation

International River Basins

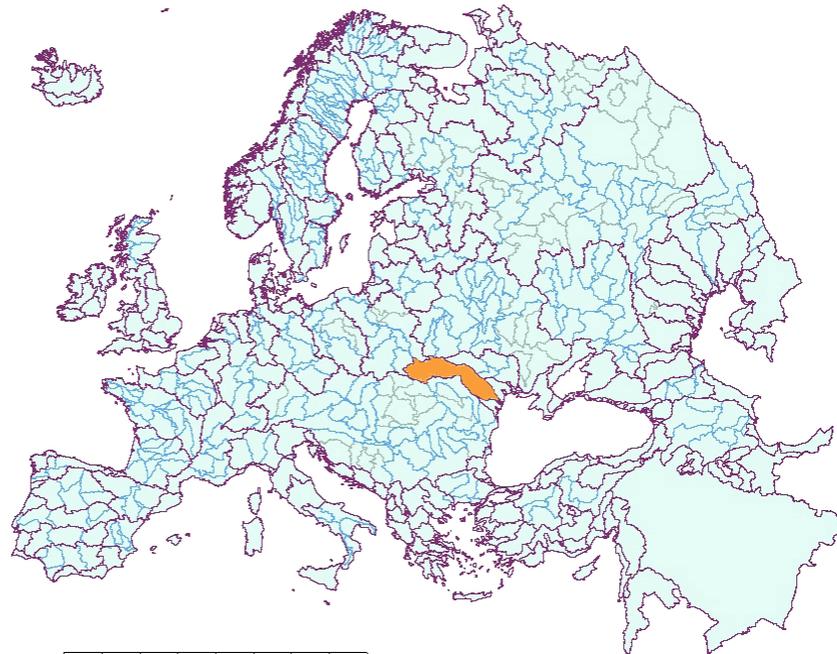


Dniester Basin



Составлено: ЮНЕП/ГРИД-Арендэл и Zoi Environment, октябрь 2010 г.

Dniester River – 1 352 km
Dniester Basin area – 72 100 km²
Mean annual discharge – 10 billion m³



0 500 1,000 2,000 Kilometers

“Algorithm” of the process

Step 1. “Where we are?”

Baseline studies

ENVSEC Project

“Reducing vulnerability to extreme floods and climate change in the Dniester river basin

Moldova

Water level regime

Hydrological monitoring

Assessment of climatic resources

Assessment of expected climate change

Scenarios for water resources of expected climate change

Vulnerability of water resources to climate change

Floods on the Dniester River

Programs and researches overview

Practice of flood risk management

Ukraine

Climate studies in Ukraine

Brief description of climatic resources and their changes

Vulnerability of water resources to climate change

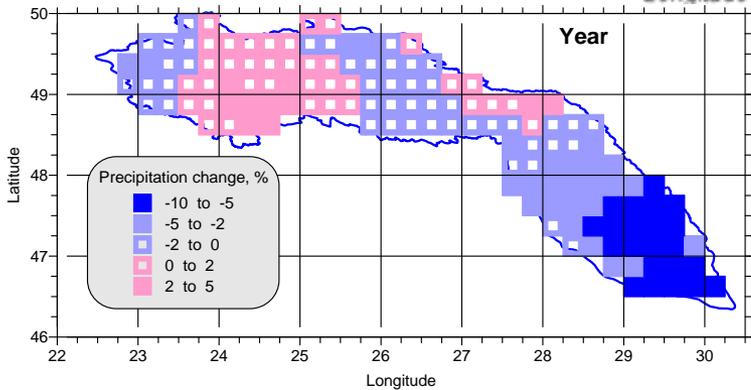
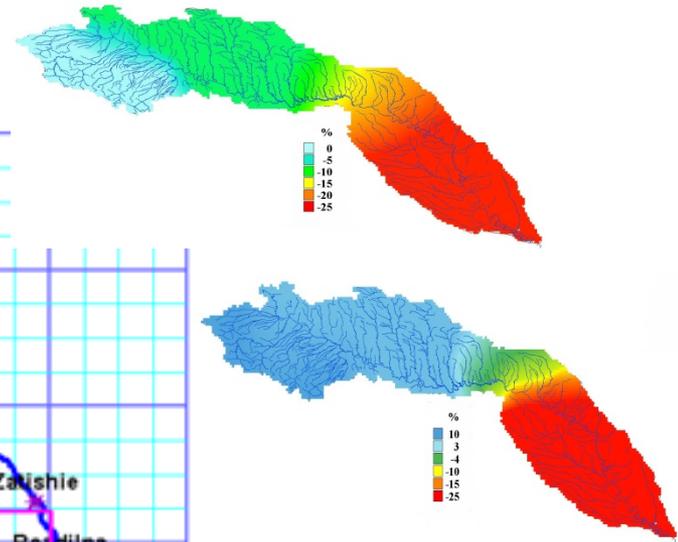
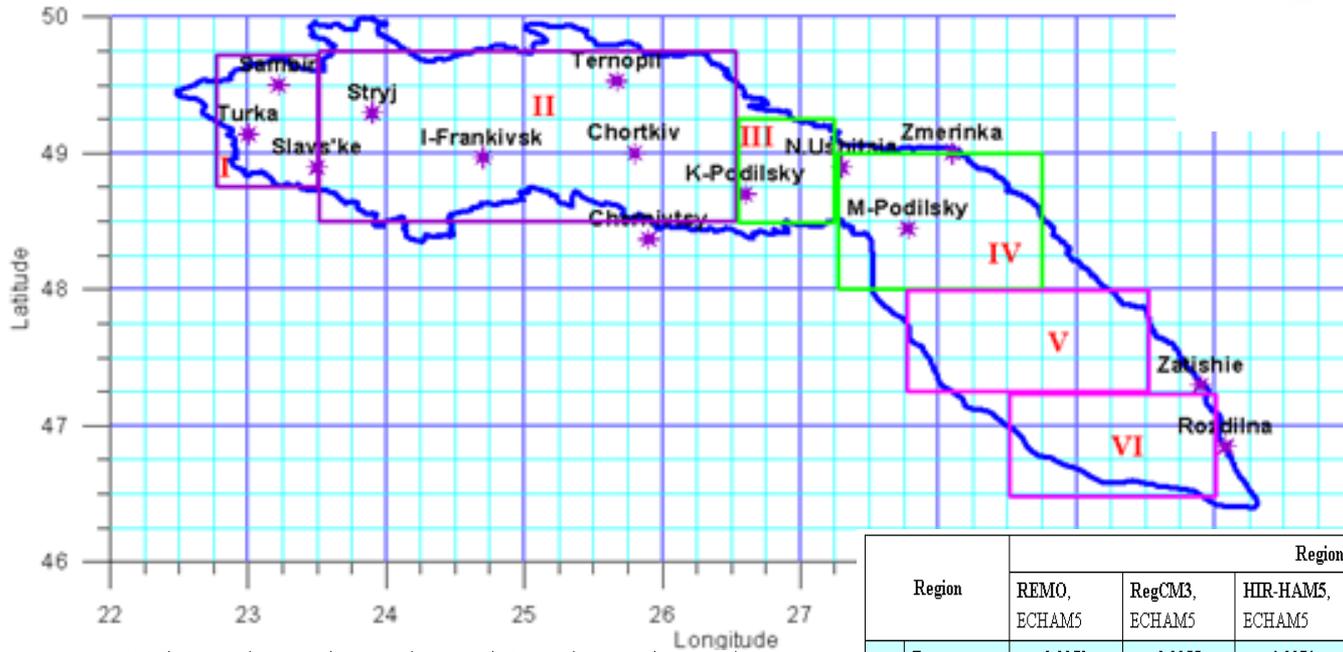
Model calculations of climate change in Ukraine

Characteristics of flood in the basin of the Dniester

List of projects on research and management of the Dniester River

Practices of flood risk management

Step 2. "What to expect?"



Region		Regional climate model, Global model							
		REMO, ECHAM5	RegCM3, ECHAM5	HIR-HAM5, ECHAM5	RM4.5, ARPEGE	RCA, ECHAM5	RCA, HadCM3	RCA, BCM	Ensemble
I	Temperature	0,9979	0,9955	0,9970	0,9885	0,9972	0,9981	0,9981	0,9991
	Precipitation	0,8990	0,8458	-0,4408	0,5734	0,8322	0,8730	0,6609	0,9028
II	Temperature	0,9982	0,9949	0,9970	0,9886	0,9973	0,9982	0,9982	0,9993
	Precipitation	0,9226	0,8412	-0,1889	0,6634	0,9350	0,9003	0,9227	0,9576
III	Temperature	0,9981	0,9956	0,9959	0,9883	0,9965	0,9976	0,9970	0,9989
	Precipitation	0,8832	0,2492	-0,3228	0,5699	0,9278	0,8095	0,7902	0,9388
IV	Temperature	0,9978	0,9955	0,9945	0,9876	0,9968	0,9975	0,9961	0,9985
	Precipitation	0,8443	0,0251	-0,5427	0,4914	0,9337	0,6046	0,7525	0,8882
V	Temperature	0,9972	0,9955	0,9930	0,9882	0,9969	0,9969	0,9959	0,9985
	Precipitation	0,7261	-0,2758	-0,7741	0,3231	0,8367	0,1896	0,8213	0,8150
VI	Temperature	0,9975	0,9960	0,9935	0,9902	0,9964	0,9957	0,9961	0,9981
	Precipitation	0,6510	-0,5214	-0,8274	0,1528	0,6204	0,1924	0,8480	0,6607

Regional climate change modeling

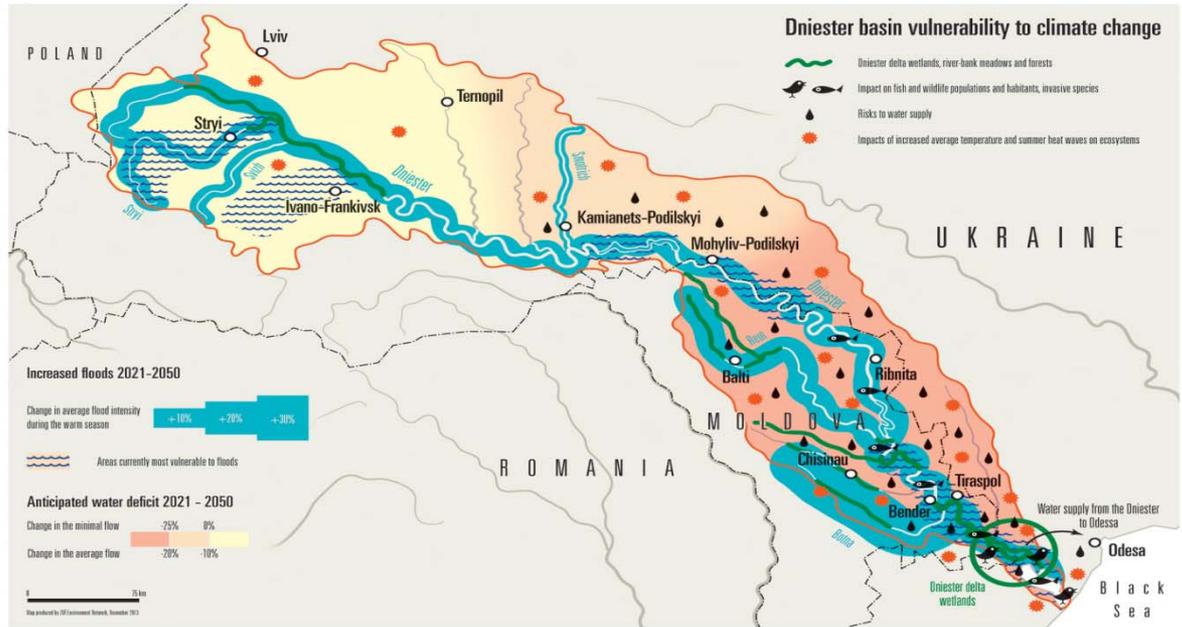
Step 3. "How it impacts?"

Executive Summary



A project "Reducing vulnerability to extreme floods and climate change in the Dniester River basin" was one of the pilot projects under the program of adaptation to climate change in the transboundary basins, carried out in accordance with the UNESCO Convention on the Protection and Use of Transboundary Watercourses and International Lakes. The Convention is considering the climate change not only as a challenge to mankind, but also as one of the drivers of transboundary cooperation, which can be the starting point in activities to improve relations between the riparian countries. A joint analysis of problems, priorities and solutions as the determining factor of transboundary cooperation, defined the agenda and methods to execute the task of a project. Harmonization of efforts of the executors from Ukraine and Moldova, as well as used means, models and scenarios, information exchange and the increased using of results of researches, projects and programs in the field of a studied problem have determined the format and content of a present report.

Executive Summary



Vulnerability assessment

Step 4. “What to do?”

Project “Climate change and security in Dniester basin”



Project is being executed with support of



Austrian
Development Cooperation

Strategic Framework for basin adaptation to climate change: promotes a common understanding on climate change impact and necessary adaptation measures from the transboundary perspective



Main Chapters

Dniester basin environment – status, perspectives, cooperation

**Climate change in the region and basin:
tendencies and uncertainties**

**Climate change influence on water flow, nature, industrial and
agricultural activities and population of Dniester Basin**

Adaptation potential to climate change in Dniester Basin

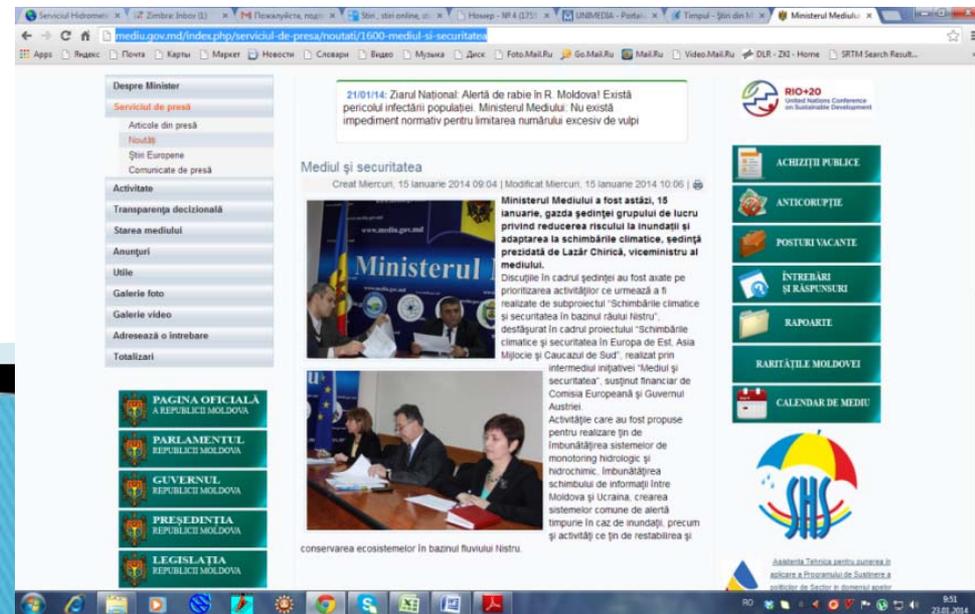
Priority actions on Dniester Basin adaptation to climate change

Where to start?

Draft document have been discussed with main state organizations of Moldova and Ukraine

- State Agency “Apele Moldova”
- State Hydrometeorological Service of Republic of Moldova
- Ministry of Environment of the Republic of Moldova
- State Agency of Water resources of Ukraine
- State Hydrometeorological Center of Ukraine
- Ministry of Ecology and Natural Resources of Ukraine

<http://mediu.gov.md/index.php/serviciul-de-presa/noutati/1600-mediul-si-securitatea>



The screenshot displays the website mediu.gov.md with a news article titled "21/01/14: Ziarul National: Alertă de rabie în R. Moldova! Există pericolul infectării populației. Ministerul Mediului: Nu există impediment normativ pentru limitarea numărului excesiv de vulpi". The article is dated Wednesday, January 15, 2014, at 09:04. The main content features a photo of a meeting with the text: "Ministerul Mediului a fost astăzi, 15 ianuarie, gazda ședinței grupului de lucru privind reducerea riscului la inundații și adaptarea la schimbările climatice, ședință prezidată de Lazăr Chirică, viceministru al mediului. Discuțiile în cadrul ședinței au fost avute pe prioritarizarea activităților ce urmează a fi realizate de subproiectul 'Schimbările climatice și securitatea în bazinul râului Nistru', desfășurat în cadrul proiectului 'Schimbările climatice și securitatea în Europa de Est. Asia Mijlocie și Caucazul de Sud', realizat prin intermediul inițiativei 'Mediul și securitatea', susținut financiar de Comisia Europeană și Guvernul Austriei. Activitățile care au fost propuse pentru realizare țin de îmbunătățirea sistemelor de monitoring hidrologic și hidrochimic. Îmbunătățirea schimbului de informații între Moldova și Ucraina, crearea sistemelor comune de alertă timpurie în caz de inundații, precum și activități ce țin de restabilirea și conservarea ecosistemelor în bazinul fluviului Nistru."

On the left sidebar, there is a menu with categories: "Despre Minister", "Serviciul de presă", "Articole din presă", "Noutăți", "Știri Europene", "Comunicate de presă", "Activitate", "Transparența decizională", "Starea mediului", "Anunțuri", "Utilie", "Galerie foto", "Galerie video", "Adresați o întrebare", and "Totalizari". At the bottom of the sidebar, there are logos for "PAGINA OFICIALĂ A REPUBLICII MOLDOVA", "PARLAMENTUL REPUBLICII MOLDOVA", "GUVERNUL REPUBLICII MOLDOVA", "PREȘEDINȚIA REPUBLICII MOLDOVA", and "LEGISLATIVA REPUBLICII MOLDOVA".

On the right side of the page, there are several utility buttons: "ACHIZIȚII PUBLICE", "ANTICORUPȚIE", "POSTURI VACANTE", "ÎNȚEBĂRI ȘI RĂSPUNSURI", "RAPOARTE", "RARITĂȚILE MOLDOVEI", and "CALENDAR DE MEDIU". At the bottom right, there is a logo for "SIS" (Sistemul Informatic de Securitate) and a footer with the text "ANUNȚUL DE ÎNȚEBĂRI ȘI RĂSPUNSURI" and "Ministerul Mediului și Protecției Mediului".

Step 5. "How to do?"

Strategic Framework Implementation Plan



1. Reducing damage from extreme floods

2. Reducing damage from water deficiency

3. Reducing damage from worsening of water quality

4. Conservation and restoration of water ecosystems and species

5. General adaptation measures and development of cooperation in the basin

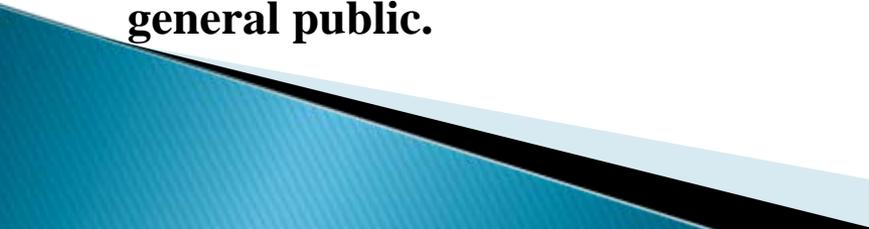
Структура плана (оглавление)		
Меры по прогнозу и анализу риска	Меры по предотвращению и снижению риска	Меры по устранению последствий
Снижение ущерба от экстремальных паводков		
<ul style="list-style-type: none"> Совершенствование мониторинга и прогнозирования стока и обмена информацией Картографирование риска затопления Инвентаризация защитной инфраструктуры 	<ul style="list-style-type: none"> Обновление и соблюдение правил эксплуатации днестровских водохранилищ Обновление схем противопаводковой защиты Восстановление и оптимизация системы защитных сооружений 	<ul style="list-style-type: none"> Обновление и выполнение плана реагирования на чрезвычайные ситуации Информирование населения и местных властей об опасности паводков Страхование рисков (в т.ч. с государственной поддержкой)
Снижение ущерба от дефицита воды		
<ul style="list-style-type: none"> Совершенствование мониторинга и прогнозирования стока и обмена информацией Оценка и мониторинг состояния водос 	<ul style="list-style-type: none"> Сохрана и восстановление лесов Обновление и соблюдение правил эксплуатации днестровских водохранилищ Модернизация оросительных систем Снижение потребления и потерь воды 	<ul style="list-style-type: none"> Диверсификация водоснабжения населенных пунктов Страхование рисков (в т.ч. с государственной поддержкой)
Снижение ущерба от снижения качества воды		
<ul style="list-style-type: none"> Совершенствование мониторинга и прогнозирования стока и обмена информацией Совершенствование мониторинга качества воды 	<ul style="list-style-type: none"> Обновление систем очистки сточных вод Сохрана и регулирование использования водосборов и водозащитных зон 	<ul style="list-style-type: none"> Модернизация систем водоподготовки и распределения воды Диверсификация водоснабжения населенных пунктов
Поддержка и восстановление водных и околоводных экосистем и видов		
<ul style="list-style-type: none"> Совершенствование мониторинга экосистем, и биологических ресурсов и трансграничный обмен информацией Анализ экологического ущерба бассейнового уровня 	<ul style="list-style-type: none"> Ограничение деятельности в пределах пойм и водно-болотных угодий Расширение сети ООПТ и экологических коридоров Обновление и соблюдение правил эксплуатации днестровских водохранилищ Борьба с браконьерством и незаконной выловкой 	<ul style="list-style-type: none"> Восстановление прибрежных лесов, лугов и водно-болотных угодий бассейнового значения Восстановление местобитания и запаса рыбы
Общие меры адаптации и развития сотрудничества в бассейне		
<ul style="list-style-type: none"> Информирование о проблемах изменения климата в бассейне Днестра 	<ul style="list-style-type: none"> Учет потребностей населения в перспективных планах КУВР бассейна Днестра 	

Groups of measures:

- Measures on forecasting and risk analysis
- Measures on prevention and risk reduction
- Response measures

Measures

1. Improvement of the information base for climate adaptation to climate change

- Further automation of hydrological monitoring in the basin, and strengthening the exchange of monitoring data (including installation of precipitation gauges in the areas where precipitations are formed).
 - Creation of a joint platform on data exchange between hydrometeorological services of Moldova and Ukraine.
 - Modeling and mapping of flooded areas and risk zones (incl. risks of flash floods).
 - Calculation of the current and the long-term water use balance of the Dniester basin.
 - Improvement of hydrological forecasting of inflow to the Dniester reservoir.
 - Development of a model of functioning of the cascade of the Dniester reservoirs and its further implementation.
 - Training and preparation of awareness materials on actions required before, during and after flooding for local administrations, civil protection units, schools and the general public.
- 

2. Ecosystem restoration and conservation

- **Restoration of water exchange between the Dniester and floodplain meadows by establishing water releases under the road Mayaki-Palanca.**
- **Creation of forest margins and riverside protective bands in Ramsar wetlands (5-7 ha).**
- **Feasibility study for one wetland to be inundated during floods in Moldova and development of the relevant legal justification.**

3. Awareness activities

- **Afforestation events in transboundary areas on the Dniester accompanied by training for foresters and local authorities on selection of species and areas for afforestation at the banks and water protection zones.**
- **Public awareness activities: support of the art-contest “Colours of the Dniester”, conduction of awareness raising expeditions and the Dniester festival.**

<https://www2.unece.org/ehlm/platform/display/ClimateChange/Dniester>

Lessons learnt

- ▶ **Consultations process which includes stakeholders from both countries is complicated and time consuming, but still beneficial.**
- ▶ **A few of key stakeholders are not quite cooperative. For example, the energy sector did not state clearly their position.**
- ▶ **The issue of adaptation is not the priority for a lot of sectoral authorities since a lot of urgent day-to-day problems remain unsolved.**
- ▶ **On the regional and local levels there are no authorities responsible for climate change adaptation.**
- ▶ **Importance of link between political and experts' level, e.g. through creation of a working group and regular meetings.**

Lessons learnt

- ▶ **Importance of concrete activities (implementation of some measures) and involving public.**
- ▶ **Importance and difficulty to link to national level, need for coordination and mainstreaming.**
- ▶ **Producers are more interested in day to day problems and are not thinking strategically.**
- ▶ **Rural population is not aware about the problems linked with the climate change adaptation.**
- ▶ **Importance of joint scenarios, modelling and vulnerability assessment, but extent of harmonization depends on resources and time available**
- ▶ **Cooperation on climate change can facilitate transboundary cooperation more generally**



**THANK YOU FOR
ATTENTION!**