Dniester River Basin

Flood management and progress since 2009

Second Workshop on Transboundary Flood Risk Management Geneva, 19-20 March 2015

Gherman Bejenaru, State Hydrometeorological Service, Republic of Moldova


Житомир
Шепетовка
Полонное
Фастов
Бердичев
Львов
Самбор
Дрогобыч
Стрый
Борислав
Тернополь
Волочиск
УКРАИНА
Бережаны
Теребовля
Хоростков
Винница
Калуш
Монастириска
Городок
Болехов
Бучач
Чортков
Долина
Дунаевцы
Иваново-Франковск
Каменец-Подольский
Шаргород
Надворная
Залещики
Хотин
Могилев-Подольский
Черновцы
Сокиряны
Ямполь
Днестровское водохранилище
Балта
Бэлць
МОЛДОВА
Долинск
Кишинэу
Бендер
Тирасполь
Галац
Составление: ЮНЕП/ГРИД-Арендал и Zoi Environment,
0
500
1 000
2 000 Kilometers

Convention on the Protection and Use of Transboundary Watercourses and International Lakes was adopted in Helsinki in 1992, March 17. This convention was the basis for the document **Agreement between the Government of the Republic of Moldova and the Government of Ukraine on the joint management and protection of the cross-border waters** signed in 1994 in Chisinau, November 23.

On 19 November 2012 the Government of the Republic of Moldova and The Cabinet of Ministers of Ukraine signed the **Bilateral Treaty on Cooperation on the Conservation and Sustainable Development of the Dniester River Basin.** Minister of Environment of the Republic of Moldova, Mr. Gheorge Salaru, and the Minister of Ecology and Natural Resources of Ukraine, Mr. Eduard Stavytskyi, signed the Treaty during the sixth Meeting of the Parties to the United Nations Economic Commission for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) which took place in Rome.

- As a part of the agreement, there will be established a bilateral commission to support sustainable use and protection of the basin. The signing of this document is an important step in the realization of the obligations of Ukraine and the Republic of Moldova under the UNECE Convention on transboundary waters. The expansion of cooperation of 2 countries, including the development and approval of the agreement, were supported by the initiative "Environment and Security" (ENVSEC) through a number of projects conducted jointly by UNECE, the Organization for Security and Cooperation in Europe (OSCE) and the Program for United Nations Environment (UNEP). The signing of the agreement is the result of the gradual development of cooperation over the last eight years with a wide range of stakeholders in both countries, including the Transnistrian region of the Republic of Moldova.

HGO1009/2014
Внутренний номер: 355945
Varianta în limba de stat

Карточка документа

Республика Молдова

ПРАВИТЕЛЬСТВО

ПОСТАНОВЛЕНИЕ Nr. 1009
от 10.12.2014

об утверждении Стратегии адаптации к изменению климата в Республике Молдова до 2020 года и Плана действий по ее внедрению

Опубликован : 19.12.2014 в Monitorul Oficial Nr. 372-384 статья № : 1089

В целях обеспечения внедрения положений Рамочной конвенции Организации Объединенных Наций об изменении климата, ратифицированной Постановлением Парламента № 404-XIII от 16 марта 1995 г. (Официальный монитор Республики Молдова, 1995 г., № 23, ст.239), а также механизмов и положений Киотского протокола к Рамочной конвенции Организации Объединенных Наций об изменении климата, к которому Республика Молдова присоединилась (Закон № 29-XV от 13 февраля 2003 г. (Официальный монитор Республики Молдова, 2003 г., № 48, ст. 193), Правительство ПОСТАНОВЛЯЕТ:

1. Утвердить:

Стратегию адаптации к изменению климата в Республике Молдова до 2020 года, согласно приложению № 1;

План действий по внедрению Стратегии адаптации к изменению климата в Республике Молдова до 2020 года, согласно приложению № 2.

- **On December 10, 2014, through the decree №1009, the Government of the Republic of Moldova adopted the Strategy for climate change adaptation in the Republic of Moldova until 2020 and an action plan for its implementation.**

- **Based on the adopted strategy, there is developed a plan of water resources management of the Dniester, taking into account the cross-border cooperation. Currently the Ministry of Environment of the Republic of Moldova together with the program Compact, has a second round of public consultation on the draft management plan for the Dniester River** (Moldavian segment). Cross-border cooperation in water management of the Dniester River is a part of the document under discussion.

- The main factors contributing to the success of cross-border cooperation is the understanding of the parties of the unity and integrity of the basin's water resources, responsibility for the events that occur in the upper reaches of which depends on the situation in the lower basin.
- The main drawback is the lack of coordination between departmental organizations in the country. For example, the energy supply engineers pursue their goals despite the requirements of ecologists or water consumers.

- It should be noted the close cooperation of the Hydrometeorological Services of Moldova and Ukraine, water managers and structures of Civil Protection and Emergency Situations of the two countries. Flood management are coordinated between agencies of Ukraine and Moldova.
- To match the practical aspects of the regulation of releases from reservoirs of Dniester hydroelectric complex, there operates an Interdepartmental Commission under the State Agency of Water Resources of Ukraine to establish modes of the Dnieper and Dniester reservoirs. At annual meetings for the coordination of ecological flows are participating not only the representatives of Ukrainian authorities and their regional offices, but also representatives of water and environmental agencies of Moldova. On the condition that representation and real voting rights are provided to all interested departments and regions of the basin, the mechanism should be able to provide a flexible consideration of various interests.

- Contemporary political trends in Moldova and Ukraine and the movement towards European integration significantly altered the political and administrative arrangements, including the management of water basins and their resources. However, in both countries there are still ample opportunities to bring the control mechanisms in line with the requirements of a modern democratic society. Still, the difficult economic situation remains, which makes it difficult to mobilize its own resources for the development of countries. In Ukraine, the majority of them are distracted by the need to resolve the military-political crisis in the south-east of the country. Transnistrian region of Moldova, which has great economic potential, remains a hotbed of political tension, in fact, beyond the control of the central government.

- Greater attention should be paid to flood management. **In Moldova in 2014 was developed and adopted a government decree on flood management plan.** In this context, much attention should be paid to improve the institutional capacity of water management organizations in the management of floods on rivers. It is necessary to improve the quality of medium- and long-term forecasts of flood done by the Hydrometeorological Services of the two countries, in the framework of the Water Framework Directive. Creating and adapting to it the future management plan of the Ukrainian part of the basin and accounting in both basin-wide plans and climate aspects can be effective mechanisms for implementation of specific areas and adaptation measures.

HGO887/2013
Внутренний номер: 350280
Varianta în limba de stat

Карточка документа

Республика Молдова

ПРАВИТЕЛЬСТВО

ПОСТАНОВЛЕНИЕ Nr. 887
от 11.11.2013

об утверждении Положения
об управлении рисками наводнений

Опубликован : 15.11.2013 в Monitorul Oficial Nr. 258-261 статья № : 992

Во исполнение положений части (1) статьи 49 Закона о воде № 272 от 23 декабря 2011 г. (Официальный монитор Республики Молдова, 2012 г., № 81, ст. 264) Правительство ПОСТАНОВЛЯЕТ:
1. Утвердить Положение об управлении рисками наводнений (прилагается).
2. Контроль за выполнением настоящего Постановления возложить на Министерство окружающей среды.

ПРЕМЬЕР-МИНИСТР **Юрие ЛЯНКЭ**
Контрасигнует:
министр окружающей среды **Георге ШАЛАРУ**

№ 887. Кишинэу, 11 ноября 2013 г.

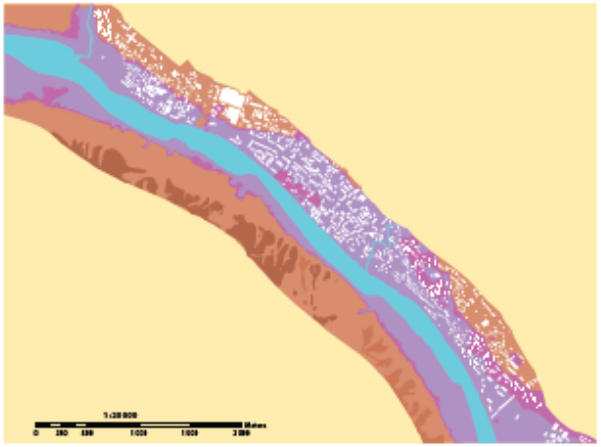
Приложение

- Although the floods as a natural natural phenomenon always occur, they cannot be excluded in the future and are, in principle, beneficial to the "health" of the river and floodplain ecosystems, still, annually they bring losses of millions in economy and population of Moldova and Ukraine and take the lives of dozens of people. Catastrophic floods in 2008 and 2010in the Dniester Basin again reminded that the existing set of flood protection today only partially fulfills its function.
- The effectiveness of modern defense will decrease with the expected increase in water content of the catastrophic floods in future.

Thus, on the results of simulation in Mogilev-Podolsky, one of the regularly flooded Ukrainian cities in the middle reaches of the Dniester River, in a hypothetical increase of 15% water content to ensure maximum one per cent of flood water level here will grow by 1.3 meters (13%), and the area of flood zone increase by 20% compared to today.

To similar consequences can result the increase of water content of catastrophic floods in the towns and villages of Moldova

Моделирование катастрофических наводнений в Могилеве-Подольском



Источник: Коломиец и др. 2012, с изменениями.

Паводок 2008 года (обеспеченность 1%)

То же при увеличении водности паводка на 15%

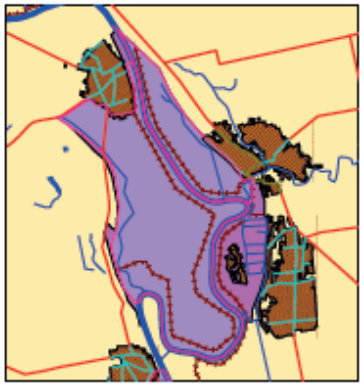
Защитные дамбы

Моделирование катастрофических наводнений в населенных пунктах Молдовы

Вадул-луй-Водэ

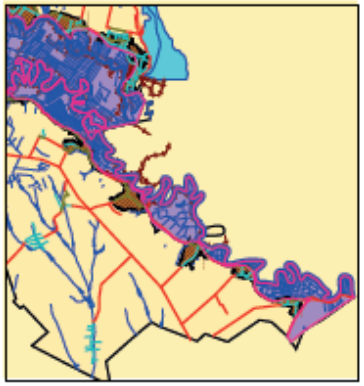
Старые Дубоссары

Пугачены



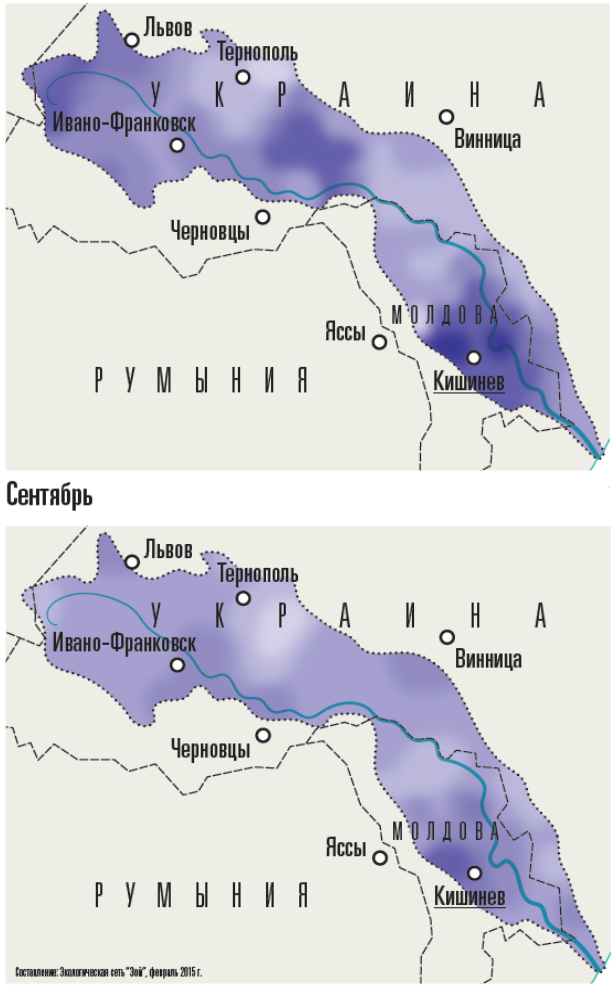
Кицканы

Паланка



Источник: Коробов и др. 2013, с изменениями.

Expected change in average water floods in the Dniester River Basin in 2021-2050 compared to the 1971-2000 years



Расчеты для 2021-2050 гг. по сравнению с 1970-2000 гг. Глобальный сценарий выбросов A1B, ансамбль моделей REMO-ECHAM5.

Источник: УкрНИГМИ 2012, с изменениями.

Calculations for A1B global emissions scenario shows that although the overall number of days with floods per year in the watersheds of the Dniester River and its tributaries to the middle of the century may be reduced during the warm period, it may grow by 20-30% in the top and by 10-20% middle reaches, and in the summer to 40% in the top 20-30% on average and 10-20% in the lower reaches. In this case, almost the entire territory of the Dniester basin can expect a substantial increase in the intensity of floods in the warm season, especially noticeable in the upstream (30-40%) and downstream (to 65%). In the middle reaches is possible a significant (80%) increase in the intensity of floods in the summer, but the biggest changes can be expected in September, when some of the upper tributaries (Stry), medium (Smotrych) and downstream (Reut, Botna) the intensity of local flooding may increase 2-3 times.

Organizations that participate in the process of communicating flood risks to people, as well as in the prevention of the consequences of floods in the Dniester basin include:

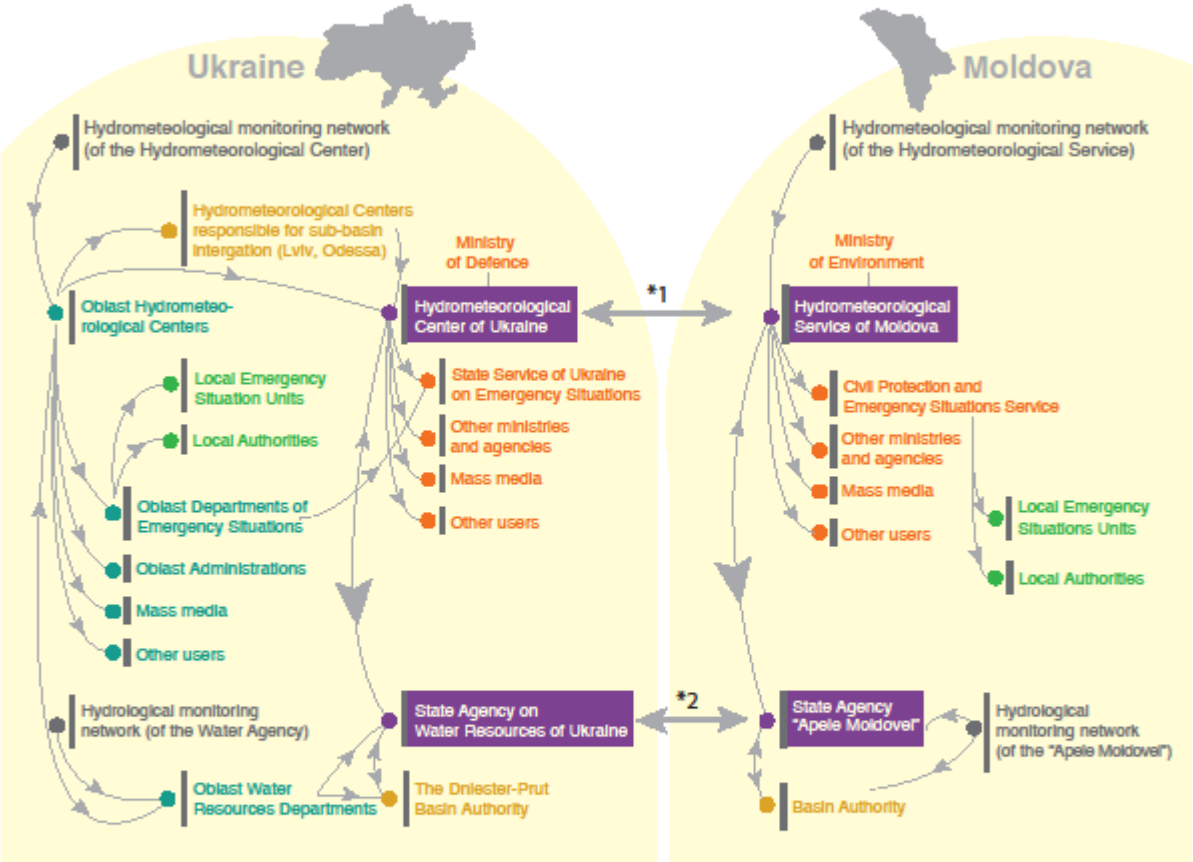
In Moldova

•The Hydrometeorological Service of the Ministry of the Environment www.meteo.md;
•The Civil Protection and Emergency Situations Service of the Ministry of Internal Affairs• www.dse.md;
•The State Agency “Apele Moldovei” under the Ministry of the Environment www.apelemoldovei.gov.md;
•The Basin Authority of Water Resources Management under the Ministry of the Environment

In Ukraine

•Ukrainian Hydrometeorological Centre under the State Service of Ukraine for Emergency Situations• www.meteo.gov.ua;
•The State Service of Ukraine for Emergency Situations www.mns.gov.ua;
•The Department of Emergency Situations and Chernobyl Disaster at the State Oblast Administrations;
•The State Agency for Water Resources www.scwm.gov.ua;
•The Dniester-Prut Basin Water Management Authority www.dpbuvr.org.ua;

Hydrometeorological data flows at different levels in the Dniester river basin



Levels of the information flow:

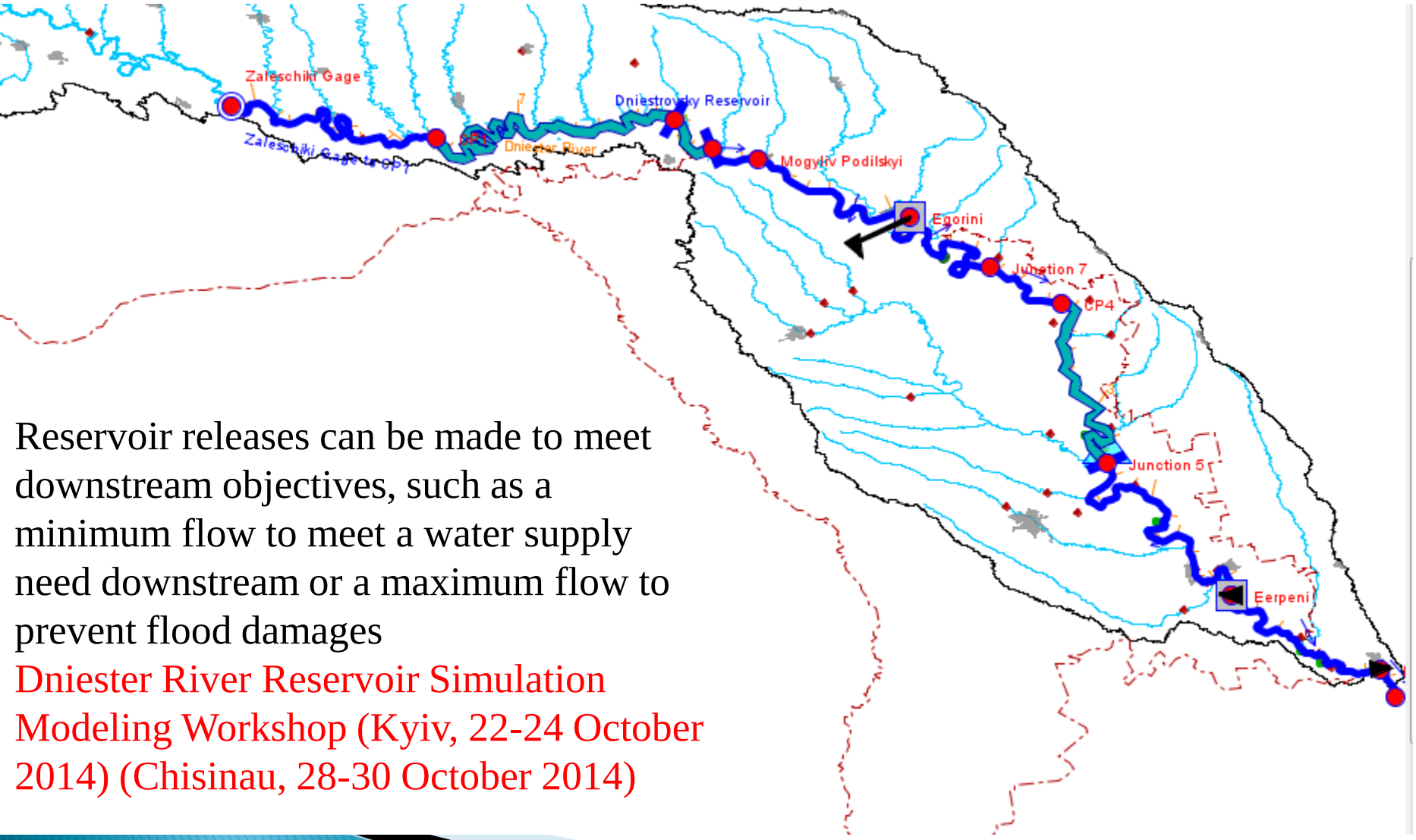
- transboundary
- basin
- country
- oblast
- local

*1 - Agreement between the Main Department on hydrometeorology of the State Department of Republic of Moldova on environmental protection and natural resources and the State Committee of Ukraine on hydrometeorology on scientific-technical cooperation (1996).

*2 - Agreement between the Government of the Republic of Moldova and the Government of Ukraine on the joint management and protection of the cross-border water (1994).

Produced by Zoi Environment Network, 2013.

Modeling of Dniester reservoirs by AGWA



Reservoir releases can be made to meet downstream objectives, such as a minimum flow to meet a water supply need downstream or a maximum flow to prevent flood damages

Dniester River Reservoir Simulation Modeling Workshop (Kyiv, 22-24 October 2014) (Chisinau, 28-30 October 2014)

Dniester project workshop in Vadul lui Vode, May 7th 2014
Workshop on the issues associated with the provision of information to the public about floods in the Dniester River Basin
Vadul-lui-Voda village, Republic of Moldova, May 7th, 2014

A workshop on the provision of information to the public about floods was held in the village of Vadul-lui-Voda on May 7th, 2014. The goal of the workshop was to discuss problems associated with the provision of information to the public about floods in the Dniester river basin with specialists and representatives of local selfgovernance bodies as well as encouraging an exchange of opinions on perspectives of the situation improvement at the local level.

The seminar was organized and conducted by ZOI Environment Network within the framework of the project, “Reducing vulnerability to extreme floods and climate change in the Dniester river basin” as part of the Environment and Security Initiative (ENVSEC).

Representatives of the following state structures whose activity is associated with flood prevention and remediation were invited to take part in the workshop:

- The Service of Civil Protection and Emergency Situations;
- Hydrometeorological Service of Moldova;
- Basin Agency of Water Resources of “Apele Moldovei“;
- JSC “Vodokanal Chisinau”.

International workshop on flood communication: 27-28 May , 2013 in Lviv, Ukraine

Having studied the information flow and the awareness of the population in the Ukrainian and Moldavian parts of the Dniester river basin with respect to floods as well as taking into account the discussions during flood communication workshop (Lviv, Ukraine) the following conclusions could be made:

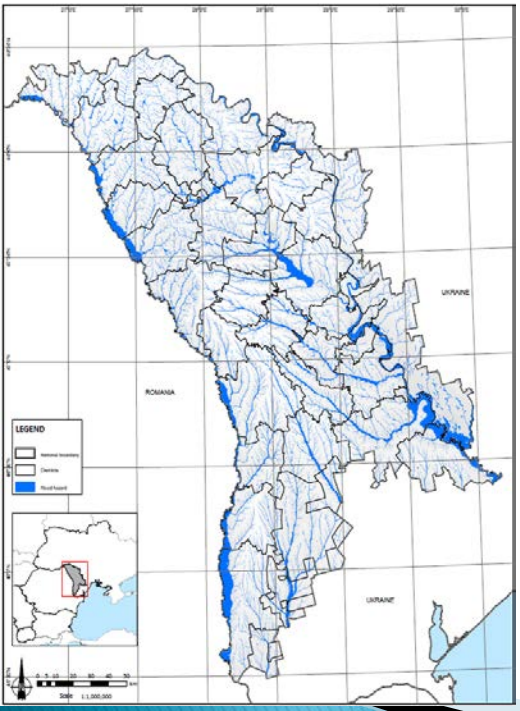
•Sharing of hydrometeorological information between organizations within each country as well as between the countries has been organized at a high level over many years; cooperation and information exchange is based on bilateral agreements on interaction;
•Information exchange is organized in a centralized way (between the countries via Kyiv and Chisinau, within Oblasts and between them via Oblast centers) that sometimes delays the delivery of information to the local level. Information exchange between organizations of different agencies within one country may be impeded.
•None of the countries has an automated early warning system in the areas most at risk of dam failure at the Dnestrovskoye and Dubossarskoye water reservoirs;

•The local warning system is based on notification via loud speakers and horns, which in the majority of cases are either absent or have worn out after 30-40 years of operation;
•The countries do not have up-to-date maps of possible catastrophic flood zones and settlements at risk; old (or outdated) maps developed during the Soviet time are predominantly used. There are no electronic maps. Modeling as well as forecasts of flooding and flow change are done fragmentarily;
•The issue of training of civil protection specialists has not been fully resolved (in particular, in Moldova there is no higher-education facility for such training with only specialized courses available). Opportunities for training of local civil protection groups are often limited, in particular by the lack of practical and financial possibilities to take part in the training programs.
•Technical equipment of local civil protection formations is extremely poor;
•In general, the level of public awareness in the basin on actions before, during and after flooding is inadequate.

National high level flood risk assessment

- Initial national flood map obtained through hydraulic modelling
- Information on historic floods added
- Areas at risk from dam break/flash flood identified
- Land use information overlapped

FLOOD HAZARD



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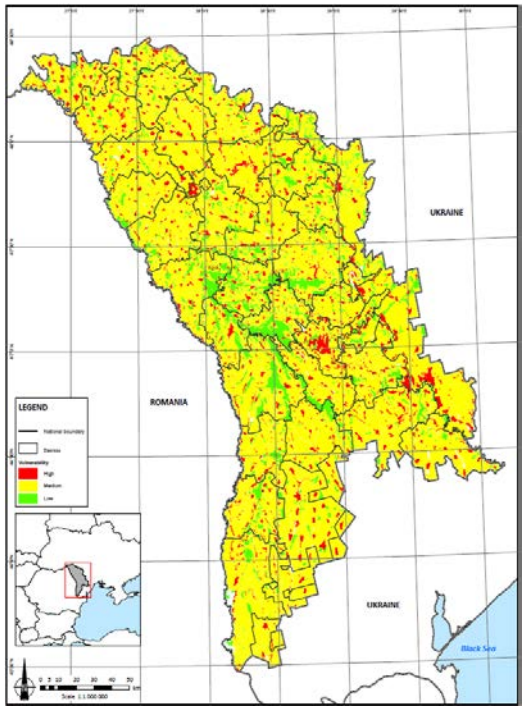
FLOOD VULNERABILITY



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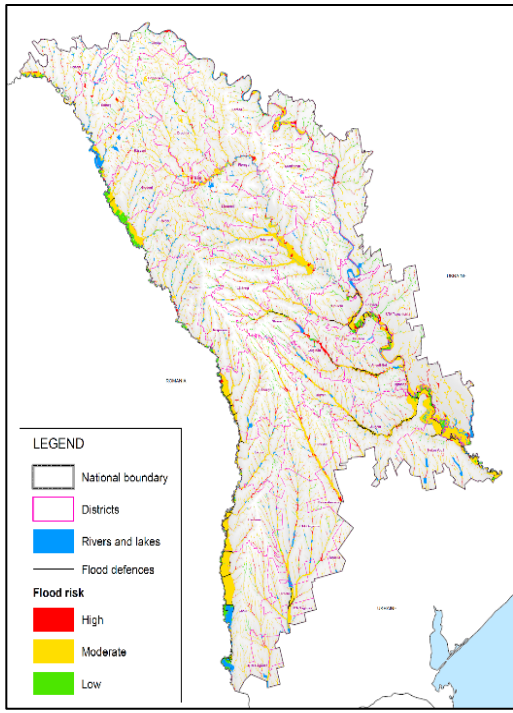
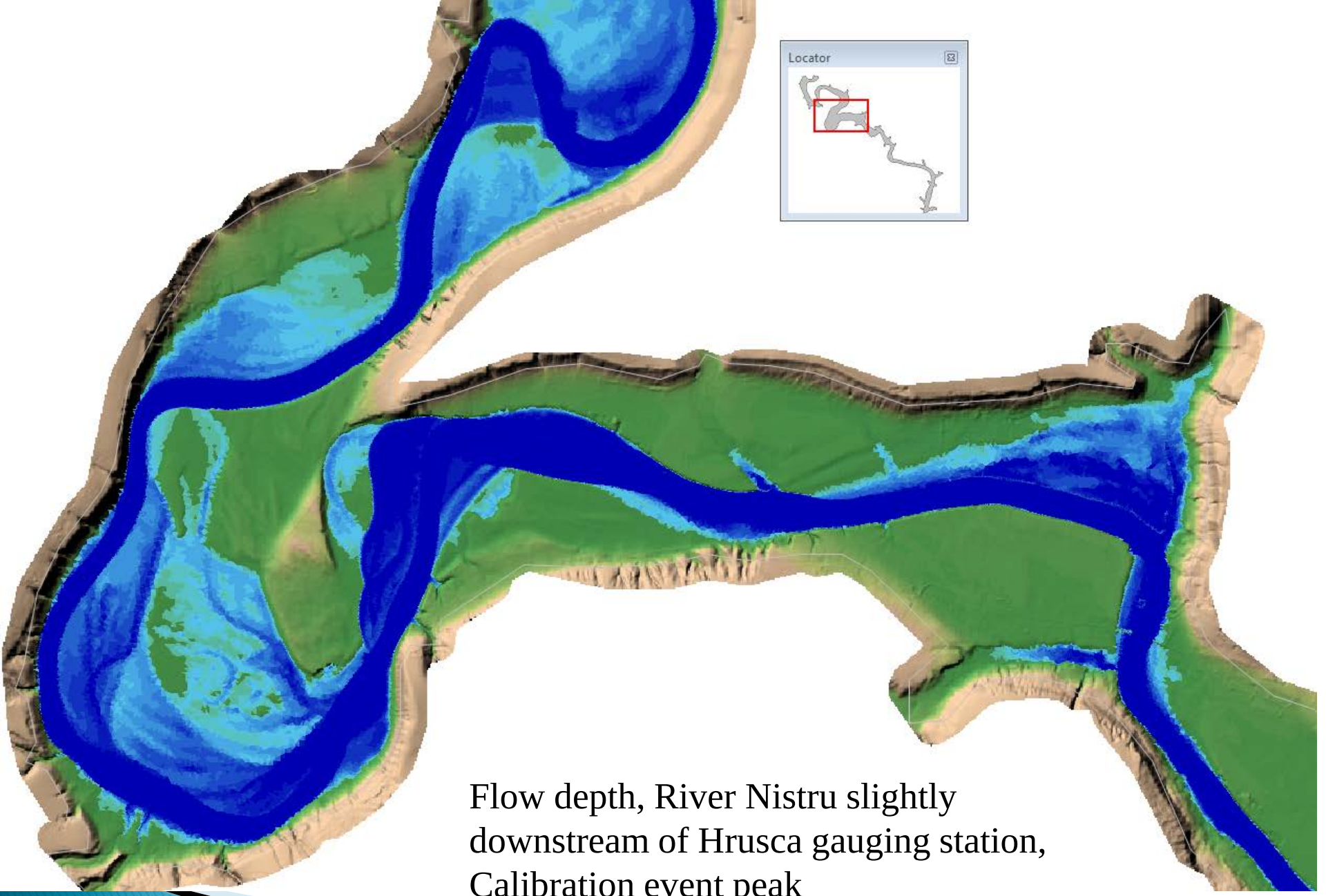
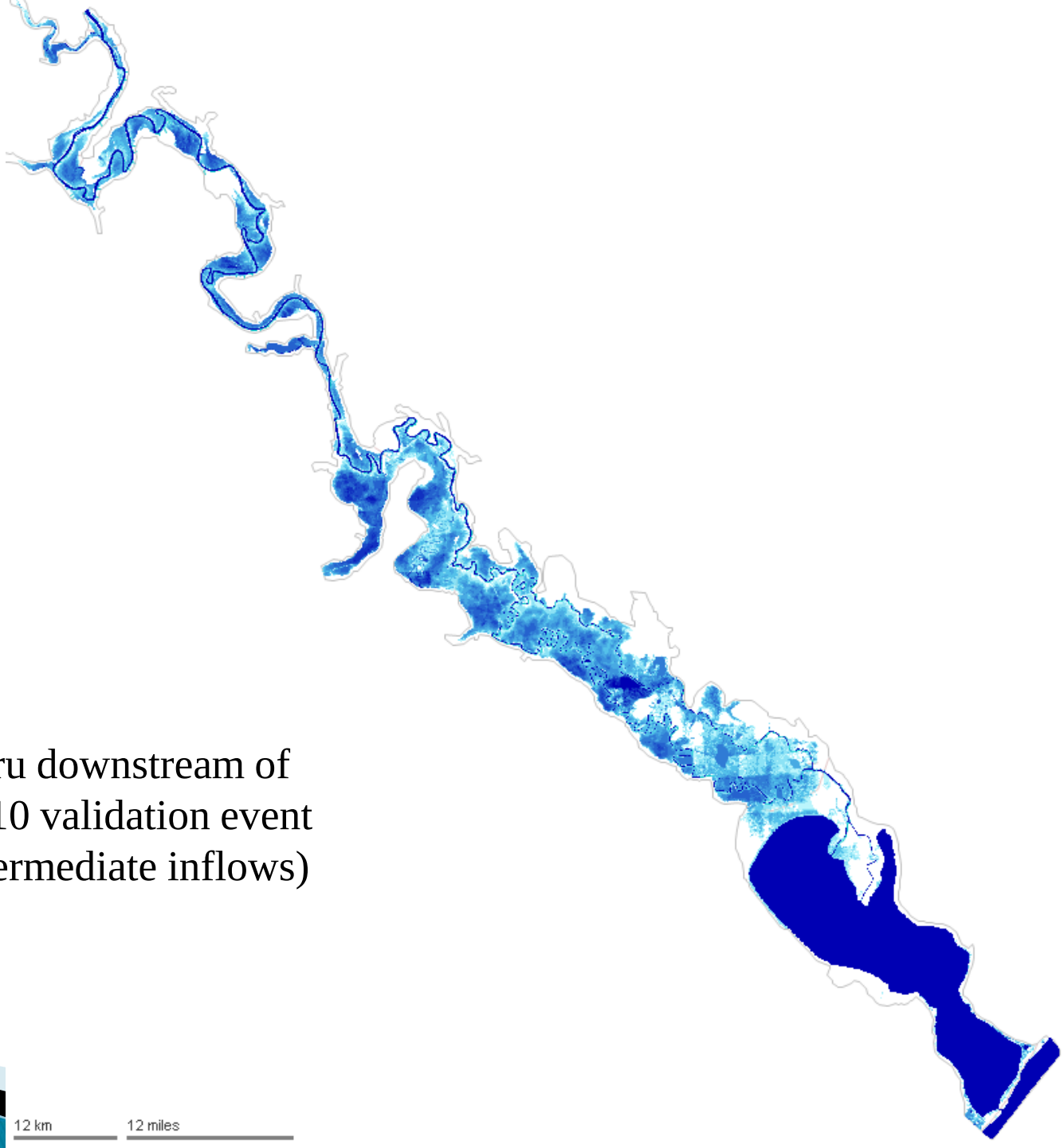
FLOOD RISK





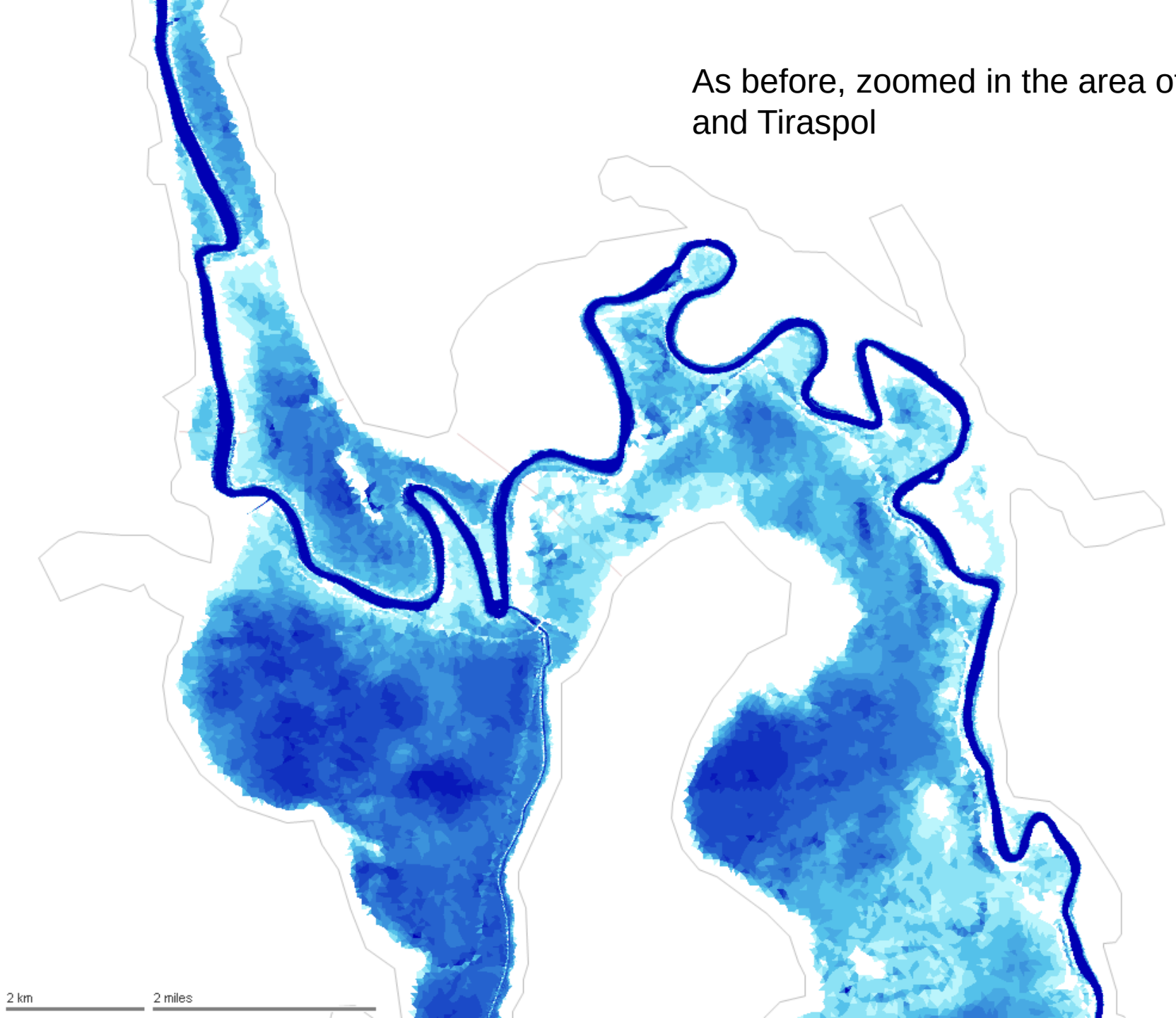
Flow depth, River Nistru slightly downstream of Hrusca gauging station, Calibration event peak

Zoom into the upper part, showing the velocity field



Flood depth on the Nistru downstream of Dubasari, Estimated 2010 validation event (No defence, and no intermediate inflows)

As before, zoomed in the area of Bender and Tiraspol



Thank You for Attention

gherman.bejenaru@meteo.gov.md