

REPORT



**SUB-REPORT PHASE 3:
INVENTORY OF FLOOD RISK MANAGEMENT
PLAN - SOTLA RIVER BASIN**



European Union
European Regional Development Fund



INTERREG IVC
INNOVATION & ENVIRONMENT
REGIONS OF EUROPE SHARING SOLUTIONS

1 INTRODUCTION

This sub-report is an inventory about the existing information and some proposals regarding flood risk management plan (FRMP) in the Sotla river basin.

The experience of other FLOOD-WISE partners in preparation of FRMPs for pilot river basins has been used during preparation of the FRMP for Sotla river pilot area.

As final outputs of the Phase 3 it was agreed that following should be achieved:

- a) Agree with Hum Na Sutli Municipality on a joint (cross-border) management plan to revitalize the Vonarje lake. This plan will contain an integrated water management concept (flora, fauna, flood risk and prevention, quality of water etc.). This plan will justify the decision to revitalize the Vonarje lake. For example: what are the expected benefits of the lake to the region on both sides of the border? Are the arguments to revitalize the lake mainly of hydrological, ecological or economical character? How will the hydrological, ecological and economic situation in border region be improved? And to what extent will flood risks be reduced through the revitalization? In other words: what are the effects of the dam for the downstream area in terms of flood prevention?
- b) Concrete investment actions will be planned in the Vonarje Lake area linked to the EU Flood Directive. Ready-to-go measures for the implementation of infrastructure related to the revitalisation of the Vonarje lake border area will be prepared, such as a cross border waste water treatment plan. Special attention will be given to the implementation of the "Regional Educational Centre of Sotla", which will be connected to the educational curriculum of local schools in both Croatia and Slovenia. The overall concept of water management (flora, fauna, flood risk and prevention, quality of water etc.) will be presented here. Such a Centre also suits perfectly for the promotion of the FLOOD-WISE project.

1.1 Work plan for the basin of the river Sotla

Issues

- Inventory of flood risk management plans on all sides of the border (Slovenia, Croatia);
- Inventory of organizations involved in flood risk management;
- Discussion on experience with flood risk management plans and cross-border cooperation;
- Recommendations for (joint) flood risk management plans on both sides of the border.

Inventory of existing practices

- In scope of The International Sava River Basin Commission (ISRBC) (Sotla is a tributary to Sava river) there are several documents, referring to the Establishment of sustainable water management, which includes cooperation on management of the Sava River Basin water resources in a sustainable manner, including integrated management of surface and ground water resources, in a manner that would provide:
 - water in sufficient quantity and of appropriate quality for the preservation, protection and improvement of aquatic eco-systems (including flora and fauna and eco-systems of natural ponds and wetlands);
 - water in sufficient quantity and of appropriate quality for all kinds of use/utilization;
 - protection against detrimental effects of water (flooding, excessive groundwater, erosion and ice hazards);
 - resolution of conflicts of interest caused by different uses and utilizations; and
 - effective control of the water regime;

Activities

- River Basin Meetings on August 23, 2011 (Rogaška Slatina), December 20, 2011 (Rogaška Slatina), April 11, 2012
- Stakeholders Meetings on February 6, 2012 (Institute for Water, Ljubljana), April 23, 2012 (Environmental Agency, Celje)
- Collection data and information exchange;

- Discussion on experience with flood risk planning and cross-border cooperation ;
- Development of the Draft Flood Risk Management Plan for the Sotla / Vonarje river pilot area

1.2 Members of the river basin pilot team Sotla

The FLOOD-WISE project team of the Sotla Basin includes:

1. Rogaška Slatina Municipality:
 - a. Kristijan Novak – project manager
 - b. Aleš Otorepec – financial expert
 - c. Branko Kidrič, M.Sc., Mayor
2. Hum na Sutli Municipality:
 - a. Mr. Zvonko Jutriša - Mayor
 - b. Mrs. Anica Kovačić – contact person from Croatian partner

Main institutes and stakeholders involved in cooperation in the frame of Project:

1. The International Sava River Basin Commission (ISRBC)
2. The Institute for Water of the Republic of Slovenia (IzVRS)
3. Croatian Waters
4. Slovenian Environment Agency

External Consultants:

1. The Hidrosvet d.o.o. (Ltd.) company

2 Existing information at each side of the border

Management plans according to all aspects of the EU Flood Directive for the Sotla River are not available either in Slovenia or Croatia yet.

Most available and existing information is related to the work of the ISRBC, where several common documents, related to the Flood Risk Management of the Sava river basin can be found:

- RECOMMENDATION 01-10_Projects of high importance for sustainable development of the Sava River Basin within the EU Strategy for the Danube region (Annex1.recommendation_1-10_with_annex.pdf);
- STRATEGY ON IMPLEMENTATION OF THE FRAMEWORK AGREEMENT ON THE SAVA RIVER BASIN (Annex2.strategy_on_implementation_of_the_fasrb.pdf);
- ACTION PLAN FOR THE PERIOD 2011-2015 concerning the STRATEGY ON IMPLEMENTATION OF THE FRAMEWORK AGREEMENT ON THE SAVA RIVER BASIN (Annex3.action_plan_for_the_period_2011-2015.pdf)

Flood Risk Management Plan (FRMP) for the river Sotla is related to the pilot district of the river “Vonarje” (picture 1).



Picture 1 - Pilot district of the river Sotla

2.1 Comparison of approach across the border

Both countries of the Sotla River Basin (Slovenia, Croatia) have common Temporary Regulation on operation of the Vonarje – Sotla lake (made after the abolition of the Vonarje lake), which includes following conditions:

- The draw-off openings (4 pieces) are closed with table gates;
- Floor drain (400 mm) is closed;
- The gate opening (1,60 m * 1.80 m) is normally opened by 1/3;

- In case of flood danger the gate opening is closed;
- The gate opening is gradually re-opening accordingly with the lowering of water level to prevent the flood risk on the lower Sotla.

For river Sotla (pilot are Vonarje) the cross-border hazard and danger maps with compliance to EU FD were generated within FLOOD-WISE project and in the first time for the entire cross border river area. Therefore FRM plan is taking into account the EU FD.

The existing regimes do not (yet) take into consideration transboundary impact of own measures and activities. Therefore cross border flood management plans should be developed.

3 Obstacles and benefits (good practices)

3.1 Obstacles to be overcome for harmonization of flood risk plans in the border region

Threats and challenges related to flood risk planning

- Transboundary nature of river Sotla must also take into account border of EU and not EU countries;
- FRM can be published to inform the managing authorities, stakeholders and public;
- Absence of management strategy of the entire Sotla River Basin including pilot and other districts with required scales and with good quality is the main obstacle for complex flood risk planning;
- Existing and planned measures in Sotla countries do not (yet) take into consideration transboundary impact of own measures and activities;
- How can be the prepared FRMP implemented?

3.2 Expected benefits of (joint) cross border cooperation for flood risk planning

Objective and expected benefits of flood risk planning for the cross-border region:

- Diminish flood risks;
- Inform people about flood risks and measurement plans;
- Assess effects of measures cross border
- Improvement of the cross border information exchange and using common information platform (morphology, hydrology and hydraulics) for flood forecast;
- Decreasing of negative effects downstream;
- Find the best solution based on the entire river basin management approach for both sides of the river Sotla (for both sides of the border).

4 Conclusions

The pilot Sotla /Vonarje river area is a special pilot case in scope of the FLOOD-WISE project, since it is focused more on the integrated approach with less focus on flood risk and more on the integrated development issues. These issues were elaborated and co-ordinated in close cross-border co-operation of Rogaška Slatina and counterparts from Hum Na Sutli.

Moreover, in Phase 3 some more stakeholders, which shared their constructive comments to the drafted Management plan, were included (especially The Institute for Water of the Republic of Slovenia (IzVRS) and Slovenian Environmental Agency).

Therefore the outputs of the Phase 3 are prepared accordingly and two-folded:

- a) Draft Joint (cross-border) management plan to revitalize the Vonarje lake area, which contains an integrated water management concept (flora, fauna, flood risk and prevention, quality of water etc.).

- b) Concrete investment actions (designs) for the utility infrastructure in the Vonarje Lake area linked to the EU Flood Directive (Ready-to-go measures for the implementation of infrastructure related to the revitalisation of the Vonarje lake border area)

Special attention of the Draft Management Plan is given to the future implementation of the “Regional Educational Centre of Sotla”, which will be connected to the educational curriculum of local schools in both Croatia and Slovenia. The overall concept of water management (flora, fauna, flood risk and prevention, quality of water etc.) will be presented here. Such a Centre also suits perfectly for the promotion of the FLOOD-WISE project.

4.1 Potential ways to harmonize flood risk planning methods across the border with respect to the requirements of the EU Flood Risk Management Directive

Due to the facts described above such integrated approach of the Vonarje lake in a way restyles the FLOOD-WISE project and cover various dimensions such as: flood retention and flood protection, water quality measures (sewage treatment, implementing the nitrate directive), agricultural development, tourism development in a cross border setting.

Future better harmonization of flood risk planning can be achieved by even more close co-operation of both municipalities, Rogaška slatina (SLO) and Hum na Sutli (HR) with the assistance of all involved stakeholders, responsible for water management in both countries (Croatian Waters and Slovenian Environment Agency).

All future actions have to comply with The International Sava River Basin Commission (ISRBC) guidelines and have to be discussed on ISRBC.

4.2 Suggestions for themes to be discussed during the next partner meeting: demands (remaining questions) and offers (good practice)

- Discussion on the various levels of the flood risk management cycle.
- Table of contents of the flood risk management plan.
- How to deal with the small rivers

5 Summary of the Management Plan for Vonarje lake area

FRMP for Vonarje lake area can be summarized in following lines:

- Primary goal: gradual revitalisation of the Vonarje lake area
- Guidelines:
 - Revitalisation will have positive influence on flood protection downstream of the lake
 - Permanent lake would enable development of touristic activities on the both sides of the border
 - Revitalisation would enable development of fishing tourism and implementation of ornithological preservation area
 - Revitalisation would enable enrichment of Sotla flow during extreme low water levels and thus enable biological minimum of Sotla
 - Adequate water quality is a precondition for revitalisation and is to be ensured by proper treatment on both sides of the border (cross-border waste water treatment plan)
- Implementation of the “Regional Educational Centre of Sotla” would enable presentation of different upstream river aspects: flora and fauna museum, quality of drinking water, flood protection, waste water treatment etc.
- Economic interest (tourism etc.) should not prevail over flood protection of the area
- There are several different interests for revitalisation, that will eventually define the point of permanent lake altitude

- Sotla is a border area and as such part of bilateral discussions between Slovenia and Croatia and will be part of arbitration procedure
- Sotla area is natural state heritage and thus under regime of nature protection – guidelines are expected

Basic revitalisations steps:

1. Final definition of state border with the arbitration procedure
2. Bilateral national agreement on the Sotla area
3. Bilateral local agreement
4. Determination of the altitude of point of permanent lake with respect to all aspects and interests for revitalisation, including flood protection, which should be the most important aspect
5. Adequate water quality (sewerage systems)
4. Cleaning of the area (mud, trees, bushes etc.) and consolidation of river banks
5. Consolidation of Prišlin and Vonarje dams
6. Implementation of the utility infrastructure (electricity, drinking water etc.)
7. Implementation of touristic infrastructure