



**The joint strategy and methodology
for environmental protection
and flood prevention,
elaborate during the project CB006.1.12.042
“Common actions for flood prevention
in the cross-border region”**



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INTRODUCTION

The joint strategy and methodology for environmental protection and flood prevention is a product created under the project CB006.1.12.042 “Joint actions to prevent floods in the cross-border region” financed through the ITERREG – IPA Cross-Border Program “Bulgaria – The former Yugoslav Republic of Macedonia” 2014-2020. Project’s partners are the Municipality of Bobov dol and the Municipality of Rankovce.

The duration of the strategy is six years (2017 - 2022).

*The Joint Strategy and Methodology for Environmental Protection and Flood Prevention of **Bobov Dol Municipality and the Municipality of Rankovce*** shall be developed and implemented in synergy with and in line with the provisions of the currently in force and updated documents for strategic planning and programming at regional level and the prospects development for the territory of the two municipalities.

The document aims to create a model for cross-border cooperation between the two municipalities, which will, in case of successful implementation, achieve improvement of the environmental conditions of the surrounding environment, in particular, water. It will reduce the negative consequences of possible floods. The model might be used as good practice in other cross-border areas.

The joint strategy and methodology for environmental protection and flood prevention has been established on the basis of an extensive analysis of the environmental situation in the two municipalities and the identified problems, based on the study of good European practices applied to the particular situation, as well as on the basis flood history in the Bobov dol Municipality – the Republic of Bulgaria and the Municipality of Rankovce – The former Yugoslav Republic of Macedonia. It has been made a detailed overview of the strengths and the weaknesses, the opportunities provided by the surrounding environment, and the identified threats of flood risk, which presents a real danger for the population of the two municipalities.



COMMON STRATEGIC OBJECTIVE OF THE JOINT STRATEGY

Ensure environmental protection and adequate flood risk management on the territory of the Bobov Dol municipality and Rankovce municipality by reducing the likelihood of floods, providing protection for residential and commercial establishments and reducing the adverse effects of such floods.

The overall strategic goal is defined according to the needs, demands and specificities of the two municipalities. Its realization is foreseen to be implemented through the implementation of the PRIORITIES for the development of the cross-border territory, within which are specified specific objectives of the Joint Strategy.

PRIORITIES OF THE JOINT STRATEGY AND METHODOLOGY FOR ENVIRONMENTAL PROTECTION AND FLOOD PREVENTION

The priorities and objectives of the Joint Strategy have been developed and aligned with some priorities taken from best European flood risk management practices, including the following:

- Avoiding new risks;
- Reducing existing risks;
- Raising awareness;
- Applying the principle of solidarity.

For each of the priorities identified in the Joint Strategy, specific objectives for the cross-border area are defined.

The objectives are determined by their importance as well as the specificities of the floods in the two municipalities.

Priority 1: **Protection of human life and public health**

Specific objectives for the implementation of Priority 1:

- Minimizing the number of affected and injured people in floods;

- Ensuring rapid drainage of water from intensive rainfall and floods from urban areas;
- Restoration of normal living conditions;
- Minimizing the number of sites affected by social infrastructure.

Priority 2:

Greater protection for critical infrastructure and businesses

Specific objectives for the implementation of Priority 2:

- Improve the protection of objects from the technical infrastructure;
- Improving the protection of significant economic sites.

Priority 3:

Enhance environmental protection

Specific objectives for the implementation of Priority 3:

- Improving the protection of sewerage systems;
- Minimization of affected areas for protection of waters, protected areas and protected areas;
- Improving the water-holding capacity of agricultural, forestry and riparian areas.

Priority 4:

Improving the preparedness and responses of the population

Specific objectives for the implementation of Priority 4:

- Improving the preparedness of the population for floods;
- Improving the population's response to floods.

Priority 5:

Подобряване на административния капацитет за управление на риска от наводнения

Specific objectives for the implementation of Priority 5:

- Implementation of modern legislation for spatial planning of the areas related to flood risk management;
- Providing Operational Information for Flood Risk Management;
- Increasing the qualifications of personnel involved in flood risk management;

- Minimizing the flood risk in the water flow for the water body concerned;
- Ensuring adequate response of public institutions to floods.



JOINT STRATEGIC MEASURES FOR FLOOD PROTECTION

In view of the priorities and objectives thus formulated, this Strategy also sets out specific strategic measures for their implementation. They are planned on the basis of an analysis of the available information on events up to 2010 from the Western Aegean Flood Risk Assessment Plan and the information collected and analyzed for the period after 2010.

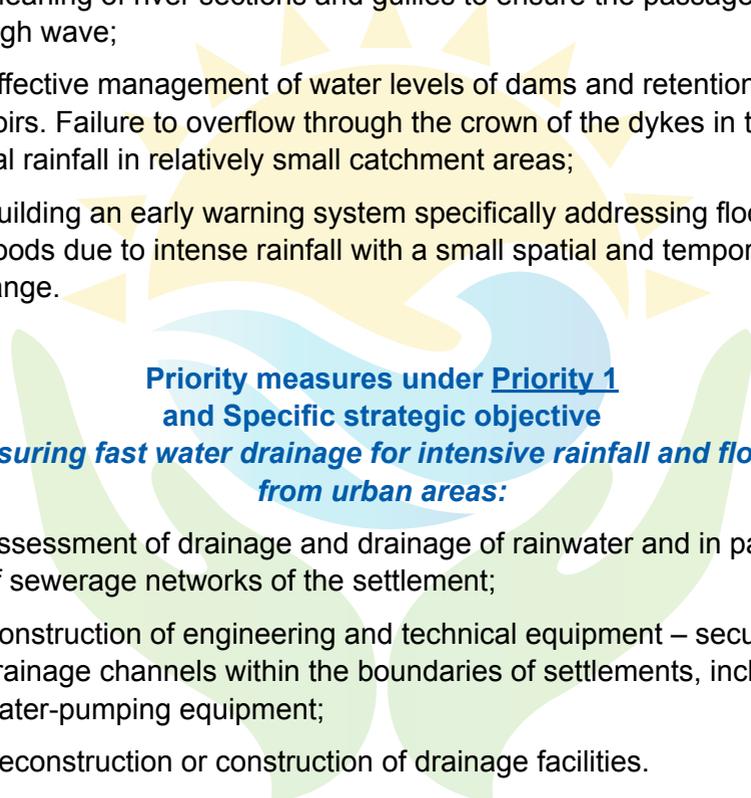
When developing the measures in the Joint Strategy, floods from rivers and surface waters identified in the Flood Risk Assessment Plan have been analyzed, but other regional measures are also envisaged to reduce the risk of technogenic floods caused by damage to a hydro technical facility which may lead to an accident or to prevent critical situations in a hydro technical facility.

It is planned that the measures set out in the Joint Strategy will be implemented between 2017 and 2022.

Priority measures under Priority 1 and Specific strategic objective

Minimize the number of affected and injured people in floods:

- Permanent monitoring of the construction near the floodplains;

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- A decorative background featuring a yellow sun with rays and two hands, one light blue and one light green, holding the sun. The sun and hands are centered behind the text.
- Annual Survey of the Status of River Corrections;
 - Reconstruction and maintenance of corrections;
 - Building new corrections;
 - Cleaning and management of River beds within the boundaries of urbanized territory;
 - Cleaning of river sections and gullies to ensure the passage of a high wave;
 - Effective management of water levels of dams and retention reservoirs. Failure to overflow through the crown of the dykes in torrential rainfall in relatively small catchment areas;
 - Building an early warning system specifically addressing flood floods due to intense rainfall with a small spatial and temporal range.

**Priority measures under Priority 1
and Specific strategic objective**

***Ensuring fast water drainage for intensive rainfall and floods
from urban areas:***

- Assessment of drainage and drainage of rainwater and in particular of sewerage networks of the settlement;
- Construction of engineering and technical equipment – security, drainage channels within the boundaries of settlements, including water-pumping equipment;
- Reconstruction or construction of drainage facilities.

**Priority measures under Priority 1
and Specific strategic objective
*Restoring normal living conditions:***

- Documentation of Events and Assessment of Flood Damage;
- Assessment of damage to buildings and infrastructure;
- Assessment of sustainability and fitness for use of flood-affected buildings and infrastructure;
- Pumping water from the most affected areas of settlements.

**Priority measures under Priority 1
and Specific strategic objective**

Minimizing the number of sites affected by social infrastructure:

- Assessment of damage to buildings and infrastructure;
- Construction of engineering and technical equipment – security, drainage channels within the boundaries of settlements, including water-pumping equipment.

**Priority measures under Priority 2
and Specific strategic objective
*Improving the protection of objects
from the technical infrastructure:***

- Expansion of the “bottlenecks” such as bridges, etc., which lead to the under flowing of the river flow;
- Investigation of the technical and operational condition of the bridges;
- Annual survey of the technical and operational condition of the dam walls and their facilities;
- Elimination of dangerous, obstructive and / or inefficient dams;
- Reconstruction and repair of dams.

**Priority measures under Priority 2
and Specific strategic objective
*Improving the protection of major business entities:***

- Building a dump and combination;
- Restoration of compromised dykes.

**Priority measures under Priority 3
and Specific strategic objective
*Improving the protection of sewerage systems:***

- Ensuring Collection, Discharge and Treatment of Urban Wastewater.

Priority measures under Priority 3 and Specific strategic objective
***Minimize affected areas for water protection,
protected areas and protected areas:***

- Assessment of damage to buildings and infrastructure;
- Dredging of dykes.

Priority measures under Priority 3
and Specific strategic objective
***Improving the water-holding capacity of agricultural,
forest and riparian territories:***

- Providing the ramps for retention;
- Building a Gabion Protected Wall in Combination with Afforestation (Biological Strengthening).

Priority measures under Priority 4
and Specific strategic objective
Enhancing the preparedness of the population for floods:

- Conducting a training and information campaign on flood-related problems;
- Informing and ensuring broad access to information of the population through the use of modern methods and technologies.

Priority measures under Priority 4
and Specific strategic objective
Improving the population's response to floods:

- Raising the population's preparedness to respond to floods;
- Promoting the use of insurance products in flood-prone areas.

Priority measures under Priority 5
and Specific strategic objective
***Implementation of a modern regulatory framework
for spatial planning of flood risk management:***

- Preparation of guidelines for the development and preparedness for the implementation of disaster protection plans, including floods;
- Establishment of a crisis municipal headquarters that is in constant contact with NIMH, MoEW / WABD, regional headquarters (district administration) and MoI / DFSP. Preparation of municipal flood action plan;

- Introduction of restrictive and / or prohibitive regime for certain activities within the boundaries of the flooded territories.

**Priority measures under Priority 5
and Specific strategic objective**

Provision of operational information for flood risk management:

- Construction of sites for meteorological and hydrometric monitoring on the territory of the two municipalities.

**Priority measures under Priority 5
and Specific strategic objective**

Enhancement of the personnel involved in flood risk management:

- Capacity Building of the Competent Authorities (Municipalities, WABD, MoEW, Institutions of the Former Yugoslav Republic of Macedonia).

**Priority measures under Priority 5
and Specific strategic objective**

***Minimize flood risk in the watercourse
for the relevant water body:***

- Removal of illegal buildings, substrates, fences, storages and others located within river beds or gullies;
- Organizing and informing stakeholders downstream;
- To step up efforts to achieve further (and subsequently full) compliance with the requirements of the Water Framework Directive and the EU Floods Directive.

**Priority measures under Priority 5
and Specific strategic objective**

Ensuring adequate response of public institutions to floods:

- Development and updating of disaster protection plans (part of floods);
- Development and implementation of regional and municipal disaster risk reduction programs including floods;
- Cooperation with the competent authorities for river basin management and flood risk management of other countries;
- Evacuation of people and equipment when passing larger quantities of water from the dimensioning.

FINANCIAL FRAMEWORK FOR THE IMPLEMENTATION OF FLOOD PREVENTION AND PROTECTION MEASURES, DEPENDING ON THE TERRITORY OF EACH OF THE MUNICIPALITIES

The objective of the Financial Framework of the Joint Strategy for the period 2017-2022 is to link the necessary financial resources to the possibilities of the sources of financing.

The analysis of the possible sources of financing of the measures envisaged in the Joint Strategy shows that the estimated funds are BGN 6,409 million in total for the 6-year period or an average of BGN 1,068 million per year.

The estimated distribution of funds by years is as follows:

- For 2017 – BGN 0.340 million;
- For 2018 – BGN 0.885 million;
- For 2019 – BGN 1,144 million;
- For 2020 – BGN 1,866 million;
- For 2021 – BGN 1,664 million;
- For 2022 – BGN 0.542 million;

The allocation of these funds by municipalities is as follows:

- For Bobov Dol Municipality:
 - » BGN 3,995,198 million – for 6 years;
 - » An average of BGN 0.666 million.
- For Rankovce Municipality:
 - » BGN 1 703 560 million - for 6 years;
 - » An average of BGN 0.284 million.
- The general measures for the two municipalities:
 - » BGN 0.710 million - for 6 years;
 - » On average per year - BGN 0,118 million.

PREVENTION, EARLY WARNING AND FLOOD PREVENTION SYSTEM IN BOBOV DOL MUNICIPALITY AND RANKOVCE MUNICIPALITY

Main objective: to provide preparedness for flood response in order to ensure reliable protection of the population, infrastructure, the environment and the cultural heritage.

Basic tasks: Clear and accurate definition of duties at all levels; Maintain readiness for action and ability to respond in a timely manner; Effective use of available resources of individual institutions.

The system must provide: Disseminating information on raising water levels to local, regional government administrations and population protection services at all levels; Sufficient time before the flood to ensure adequate response.

The measurement data will be transmitted to the PC in the Dormitory Room; The computer monitor in working mode will be a geographic map of the two municipalities with the stations on it, which in tabular form show the instantaneous quantities of rainfall and river levels.

Monitor graphics will switch to different color modes, with elevated river levels, rainfall and heavy snowflakes:

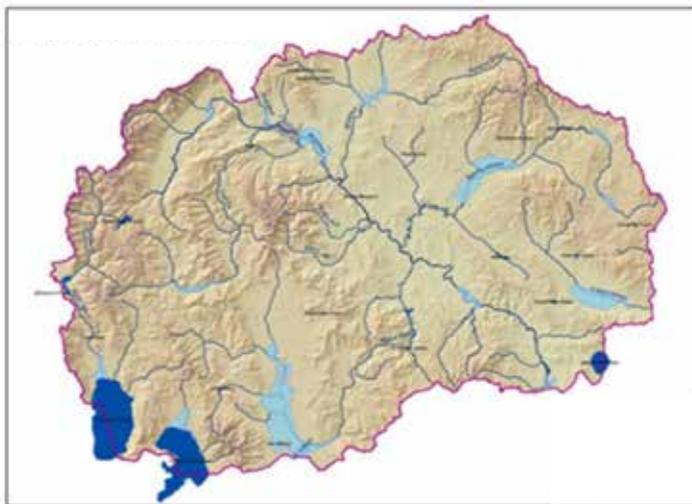
- **CODE YELLOW – PREVENTION**
- **ORANGE – WARNING CODE**
- **CODE RED – RISK**



Interreg - IPA CBC



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