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MONITOR II : Recommendations for institutional and legal improvements at assessment and management of floods risk management



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1 Data base for flood risk assessment.

1.1 Spatial data. GIS data

The adoption of the Law for spatial data leads to establishment of unified information structure, unified standards and requirements included in a network of electronic services and exchange of information, maintenance of unified information structure for updating of spatial data, access to national public structures, structures of EU, business and public information.

1.1.1 Gaps and problems in receiving and processing of spatial data.

- The spatial data required for risk management are still dispersed in different institutions in Bulgaria. To collect them is very difficult as from financial point of view, so due to lack of state-of-art and unified digital computer based system for collection, preservation and processing of information. In this context, timely adoption and implementation in the Bulgarian legislation of the EU Directive INSPYRE (2007/2/EO), regulating the establishment of infrastructure for spatial information in Europe to support the ecological policy of the Community and the policies and activities that could impact the environment, is necessary.
- At this stage there is no public service or administration which holds digital terrain model data (LIDAR data) with high-precision.
- Regarding the risk management in European scale context, just small number of users are acquainted with the international frames and programs for environment and risk management. The knowledge and information in this field is preserved for few specialists in different state institutions.

1.1.2 Recommendations

- For quality implementation of similar projects in the future we could recommend to initiate amendments in the Law for access to spatial data, in order to regulate the access and delivery of the data, necessary to perform flood risk assessment, from the state authorities for the experts in this field.
- The data should be maintained by 1-2 specialized state administrations, should be transformed in appropriate working format and there should be clear regulations for delivery of data.

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- Additional work with regional administration is required, in order the responsible officers to be informed and trained how to prepare and manage projects for flood risk assessment. The officers in the municipalities visited in the frames of the project were nor acquainted in details with the requirements of Directive2007/60/ U and have no idea how to support such projects. The regional administration is not acquainted with the benefits from such projects, how the results from them could be used to help the population and in the same time, in long-term planning, how the implementation of these projects could reduce the municipal and state costs for restoration of damages from future floods.
- Training should be organized for the responsible administrations in case of flood event how to record and document the disaster so the materials prepared by them to be useful for the risk assessment experts.
- The sate administration should invest in digital terrain model investigations (LIDAR data). The municipalities situated in Varbitsa River watershed should elaborate jointly such projects for flood risk assessment. Availability of this data it will allow to perform also risk assessment for the smaller tributaries of Varbitsa River that in the past caused sufficient damages as well. The digital terrain model will be also useful for future infrastructure planning on the territory of these municipalities.

1.2 Hydrological data

1.2.1 Gaps and problems in receiving and processing of hydrological data.

- Colecting of the hydrological data is impeded by the insufficient number of the hydrometric stations, as well as by the lack of unified computer based monitoring system for collection, reporting and processing of the information.

1.2.2 Recommendations

- The access to hydrological data required for implementation of projects of significant social interest should be regulated in the legislation.
- New requirement should be put to the monitoring network for observation of the water resources after preliminary assessment of the number and situation of the hydrometric stations and the quality of flow measurements should be improved by introduction of continuous automatic recording.

Recommendation and conclusions on the condition of the monitoring network

- The monitoring network of meteorological and hydrometrical stations should be updated in order to produce representative assessment on the precipitations and water discharge in every river watershed. The precipitations and temperatures are the main and very sensitive meteorological parameters that could significantly affect the stimulation of the water discharge.
- Due to the very short time for reaction in case of torrents and floods in the mountain regions the early warning should be based on real time data by the network of automatic equipment for measuring of the precipitations and water discharge. The flood warning system should be decentralized and must be able to cast warning signal also at local level as the transmission of the signal and its processing just at the centralized level could delay the reaction.
- As there is no trilateral agreement between Bulgaria, Greece and Turkey for management and control on Maritsa River, Greece does not receive data on the waterflow in the river in real time as from the Bulgarian side so from the Turkish side. This impedes the construction of effective system for protection and every flood event causes significant damages. These facts show that monitoring and information system at transnational level is required in order to establish a complete and effective flood protection system for rivers flowing through the territory of several counties.

1.3 Data regarding past flood events.

1.3.1 Gaps and problems in receiving and processing of data on past flood events

- The information about the boundaries of the flooded territories in the past is dispersed in a number of administrations, which leads to scattering of the data and its difficult collection. Very often there is no information about big floods in the past, data about the damages caused and data about the course of the flood. The data and the information are partial; all of them are on hard copies and are not sufficient for preparation of quality assessment of the flood risk based on past events.
- There are no unified procedures for documenting of the floods and recording of the data.

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- There are legal obstacles for delivery of information, required for risk assessment, to organizations outside the structure of Interior Ministry.

1.3.2 Recommendations

- The qualification of the servants in the state and regional administration is necessary to be increased about the documentation and registration of floods so that the information and data gathered by them to be useful to the experts in future flood risk assessments. This will lead to better communication between the state administration and the experts, working on nature disasters management, as well as to elaboration of effective measures for protection against natural disasters.
- It is necessary to introduce legal regulations on access to data required for floods risk assessment possessed by the Interior ministry.

2 Hazard maps and the risk of flood.

2.1 Recommendations for the preparation and implementation of the flood risk maps.

- The introduction of a unified and clear terminology and the elaboration of methodology with rules and requirements for preparation of detailed hazard maps are necessary.
- All available information should be digitalized, unified database with the information required for risk assessment should be established, and the existing topographic maps should be digitalized and updated.
- The resolution of the available GRID files of the terrains should be increased or their raster should be decreased.
- The best European practices that are already optimized, checked, elaborated and updated on the base of long-term research and practical experience should be applied at the elaboration of methodology guidelines for preparation of hazard maps and flood risk maps in Bulgaria.
- The elaboration of hazard maps and contingency plans for flood risk management, the participation of all responsible institutions, stakeholders and affected population is required in order to reflect at maximum extend all interests.
- After their preparation the hazard maps should included in the future regional plans for territorial organization and development, in order to consider the flood risk presented on them at defining the purpose of a given territory.
- The state and municipal authorities should use the elaborated hazard maps at management of floodplains and wetlands, at planning the land use, water resources and emergency equipments.
- The servants in the state and municipal administration should possess the necessary qualification to work with such maps and should be technically supported with the respective software.
- The insurance agents and companies could use the hazard maps to consider the risk from floods at calculating the insurance dividends in case of flood event. In this way the potential damages and losses for the population and the business would be covered more completely and precisely.

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2.2 Recommendations for the updating of the maps.

- After each flood event its parameters – course, scale, development and caused damages, should be described in details by the responsible local and national authorities. This information will serve the institutions that will be engaged in elaboration of natural disasters projects as base for comparison and will help the planning of next steps required for improvement of the hazard maps.
- The cadastre maps of the settlements should be periodically updated in order to reflect most accurately the land use.
- Updated and new hydrological and GISdata should be collected for the establishment of a new unified and digitalized data base, which will enable to expand and detailed the base for elaboration of new maps.

3 Contingency plan for protection against floods.

The responsible persons for approval and adoption of the contingency plans in case of flood events are the experts from "Civil Protection" Directorate General. The experts from the Civil protection service and the experts responsible for elaboration of flood risk assessment should work in close cooperation at elaboration of contingency plans. This will guarantee that the planned measures and actions in case of flooding will correspond to the greatest extent to the real situation and the result of their implementation will lead to effective protection of the population and the property.

Such approach is still not applied in Bulgaria due to lack of competent enough experts in the field of flood risk assessment; bad and difficult communication among the different administrations, which leads to incomplete and sometimes useless projects. These projects are unjustified expensive and time consuming, elaborated using different methodologies, which leads to incomparable final results and different types products.

3.1 Recommendations

- One main and common national structure and establishment of clear rules for elaboration of hazard maps and contingency plans should be created. Such proposal should be laid down in the Bulgarian legislation by supplementing the texts of the present Law for waters and Disaster Protection Law, which regulate the preparation of these types of plans. This will guarantee that the approved plans will meet unified conditions and requirements and their adaptation through common national procedures will be performed in a very clear, technically accurate and easy way.
- Complementary to the same Laws, common national procedures for updating of hazard maps and contingency plans should be adopted in order to guarantee in maximum extent the security of the population in case of flood event.
- Very important is the coordination in the work of experts from all institutions responsible for the protection of the population against natural disasters and the cooperation with jurists, public organizations, local authorities, etc. This will help to frame the regulatory base for disaster management and prevention. It is necessary to clearly define and separate the responsibilities between the institutions in order to avoid duplication and eventual contradiction in the actions of the different administrations. The responsibilities and the obligations of each institution should be clearly determined.

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- It is necessary to improve the existing system of communication between the responsible administrations and persons so that the information flow could go quickly and smoothly through the whole chain and the time for reaction to be reduced to minimum.
- For the successful and effective implementation of each contingency plan obligatory condition is the training and practical knowledge of the management authorities, reaction forces and the population.

To create more detailed overview on the consequences from possible flood and the measures that should be taken in this regard, the following steps should be taken:

- Elaboration of possible flood scenarios along Varbitsa river flow and along the main tributaries on the territory of the watershed. This will allow assessing under what circumstances flood could develop and what will be its scale.
- Based on the elaborated scenarios information will be received on the possible flooded areas, population under direct risk, threatened infrastructure and environment.
- The elaborated scenarios will give also information for preparation of contingency plans and evacuation schemes for the threatened population.
- Proposing of measure regarding the construction of supplementary constructions helping the stability and safe utilization of the buildings.
- Construction of monitoring systems, early warning systems and alarming systems.
- Procedures for formation and action of the specialized forces.