

Synthesis of present situation and further Institutional and Technical recommendations to strengthen NMHS capacities in DRR support

Beneficiary	Recommendations						
	Institutional framework/ enabling environment	Observational networks	Telecommunications and Computing	Data management	Forecasting system	Risk assessment/EWS/ Preparedness&Response	Regional/International cooperation
BOSNIA AND HERZEGOVINA	<p>IPA Project – Phase I Conclusion: There are needs by international organizations to accept and recognize that currently there are two NMHSs with equal status in Bosnia and Herzegovina</p>	<p>FHMZ: There is no upper air observation in the BiH at the moment. Some initial planning for the establishment of one upper air station in cooperation with Federal Agency for Civil Aviation is ongoing.</p>	<p>FHMZ: Telecommunication of FHMI is totally based on Internet. There is no any improvement since 2010. Data exchange on national and international level is done via VPN connections with network of stations, and with DCPC Sofia. There is no RMDCN connection, due to high costs. There are no plans to establish this network.</p>	<p>FHMZ: Through ongoing IPA project where we shall receive new DB server, new version of Oracle and update of CLIDATA DBMS. In Hydrological Sector - software MCH base is in the testing phase.</p>	<p>FHMZ: The Institute currently has no model for hydrological forecasts. Through participation in the work of the Group for the hydrology of the Sava Commission, is expected to supply models for hydrological forecast. (planned, in 2014)</p>	<p>Methodology for Risk Assessment in Bosnia and Herzegovina (“Official Gazette of BiH” no. 86/09) is drafted by Sector for Protection and Rescue of Ministry of Security of Bosnian and Herzegovina, and it was adopted by the Council of Ministers of Bosnia and Herzegovina.</p>	<p>The progress in the sub-regional cooperation for both FHMZ and RHMZ is seen through participation in projects like Sava River Basin Commission and SEECOF. There is a regional data exchange of seismological data, which allows regional data and products to be used operationally in support of EWS.</p>
	<p>FHMZ: Federation of Bosnia and Herzegovina adopted Federal Operational Flood Protection Plan – FOP in 2011, (Official Gazette of FBiH no. 07/11).</p>	<p>There is a need to establish one upper air observation station in Bosnia and Herzegovina (in coordination with the plans of the neighboring countries).</p>	<p>Currently, FHMZ receive data from the stations once a day or once a month; access to the real-time data is possible from only two stations.</p>	<p>RHMZ: Through project “Building Resilience to Disasters in Western Balkans and Turkey” we have received program for historical data management “MCH database”. At the moment we are at the phase of importing historical data into program.</p>	<p>Operational weather forecasting increased from 3 to 5 - 7 days. We started with creating video forecasts, which is available on our website.</p>	<p>The Government of Republic of Srpska adopted the Regulation on the content and manner of preparation of the Plan of protection and rescue from natural disasters and other calamities, first part of which is a methodology for risk assessment. Risk Assessment was made according to this methodology, and was adopted in December 2013. It is the starting document for all planning and other documents in the field of protection and rescue in Republic of Srpska.</p>	<p>Bosnia and Herzegovina is not a member of ECMWF, so neither FHMZ, nor RHMZ have access to ECMWF products. There is an urgent need for Bosnia and Herzegovina to become a member of ECMWF.</p>
	<p>RHMZ: Republic Hydrometeorological Service of Republic of Srpska works according to the Law on Meteorological and Hydrological Service of Republic of Srpska, adopted by the Parliament of Republic of Srpska (Official Gazette of Republic of Srpska, No. 20, 17.07.2000.). It also follows the annual regulations and plans (as stated in the Protection and Rescue Plan for Flooding and Protection Plan for Rescue from Snow and Heavy Snowfall).</p>	<p>FHMZ: There is no significant improvement concerning density of the existing meteorological observing network. Some efforts are made in integration of all the existing networks which are under jurisdiction of other institutions within the country. (E.g. Integration of 29 rainfall stations from Agency for water management). In</p>	<p>Significant improvement in computational resources has not been made since 2010. Hydrological and meteorological sector purchased four new computers; there is a strong need for technical equipment (new computers). Funding is very limited.</p>	<p>There is a need to collaborate with other NMHSs on different issues related to data base migration.</p>	<p>Numerical forecast models are increased from 48 to 96 hours. Horizontal and vertical resolution of the model is improved. As a result of the signing of the contract with DWD, ie DWD-Sat program we started to use the COSMO model, as well as a global model GME. We wrote programs that create prognostic meteograms and hourly forecasts for over 50 locations in Bosnia and Herzegovina, from numerical models, for next 96 hours.</p>	<p>Some progress has been done in the National Risk Assessment using a unified methodology (“Official Gazette of BiH” no. 86/09) for the entire</p>	<p>FHMZ received a EUMETCast station (DAWBEE station) and improved its capacity to use the EUMETSAT products. RHMZ has still not acquired DAWBEE station.</p>
	<p>Civil Protection</p>		<p>RHMZ: In 2013 new type of network on all stations was established, so the data acquisition is done</p>	<p>FHMZ: Data are kept in two forms: 1) Notes on paper (special record book and forms). Data archive is not protected and not preserved at risk of loss or deterioration); 2) Electronic form (from the EXCEL spread sheet format and in a separate database CLIDATA).The most of historical data</p>	<p>RHMZ: Lack of</p>		<p>There is an urgent need to equip RHMZ with a DAWBEE station, and to organize training on its use.</p>

	<p>Authority Republic of Srpska (CPA-RS): The Framework Law on Protection and Rescue of People and Property against Natural and other Disaster in BiH („Official Gazette of BiH“ no. 50/05) does not present legal basis for „enabling environment“ for Disaster Risk Reduction (DRR). This law is „the youngest“ in the field of protection and rescue in BiH and its aim is to provide to the Sector of Protection and Rescue of Ministry of Security of BiH legal basis for operation in the field of international cooperation and internal and external coordination. The Framework Law on Protection and Rescue is result of will of responsible institutions and bodies of entities to enable Bosnia and Herzegovina to have single entrance point for protection and rescue issues for subjects from international community, with aim to simplify communication and to harmonize practice in BiH with practices in the countries of European Union and world. But, Constitutional (original) jurisdiction for protection and rescue is still with entities and entities’ laws</p>	<p>Federation of Bosnia and Herzegovina there are 110 automatic hydrological stations, most of which has the possibility of real-time data transmission.</p> <p>RHMZ: RHMZ put one new meteorological station in work. There are additional 2 new meteorological stations, which are the property of local communities. In hydrological network RHMZ gained data from 2 new stations which are the property of public institutions. The density of hydrological stations, that are automated and fully operational, is very low!</p> <p>There is an urgent need to upgrade and modernize the meteorological and hydrological networks in Bosnia and Herzegovina and to gradually develop the network of automatic observations stations;</p> <p>FHMZ: There is no weather radar at all in Bosnia and Herzegovina. Some</p>	<p>by internet on much faster and easier way. Through ftp protocol RHMZ exchange some data with regional NMHSs. Some new computers were recently acquired.</p> <p>There are needs to improve the data transfer systems; There is an urgent need to develop real-time communication system for observations and data.</p>	<p>are in paper form. In last 15 years, some activities has been undertaken, and 15 % of historical data are digitized.</p> <p>We updated and digitized 150 files - notes with standardized (historical) Meta data on hydrological stations.</p> <p>On-going project of rehabilitation of building for archiving historical hydrological and meteorological data is in progress. The project includes the development of software catalogue base for easier search of archival data.</p> <p>RHMZ: Most of the hydrological data were digitalized. Some of the meteorological data were digitalized (mainly monthly values, and part of daily). We have done quality control and homogenization of data for main stations.</p> <p>There is an urgent need to initiate a data rescue program to digitize and quality ensures the historical data. There is a need for training to improve data rescue and data management capacities of NMHS following established WMO standards and best practices.</p>	<p>hydrological stations, lack of rain gauges stations, lack of human capacities. There is no any model for hydrological forecast</p> <p>There is a need to Improve the capacities to produce and use Numerical Weather Prediction (NWP) products;</p> <p>There is a need to promote memberships in ECMWF and EUMETSAT;</p> <p>There are needs to join some of the European NWP consortium would benefit the NWP modeling;</p> <p>There is a need to develop and integrate additional modeling for hydrology, air quality, and sea-wave and to link these models to NWP;</p> <p>There is a need to improve capacities to use automatic analysing, editing and dissemination tools;</p> <p>There is a need to improve the technical capacities to develop monthly and seasonal climate outlooks. (SEECOF)</p>	<p>territory of Bosnia and Herzegovina. Risk assessment of Bosnia and Herzegovina from natural and other disaster was completed in 2011.</p> <p>While there is a progress in application of risk assessment methodologies, there is a need for further capacity building in this area.</p> <p>Flood risk mapping and assessment including cross-border and regional components: Under the Sava Commission, WBIF application has been recently prepared: “Improvement of Joint Actions in Flood Management in the SRB”. FHMI is among Beneficiaries. Following activities outputs are anticipated by this project:</p> <ol style="list-style-type: none"> 1. Flood Risk Management Plan for the SRB, including Programme of measures 2. Flood Forecasting and Warning System for the SRB <p>Whereas there is some experience in running NWP models in both services, and with the recent improvement at FHMZ on agreement with DWD to use COSMO, and</p>	<p>Both FHMZ and RHMZ participate in EUMETNET-EMMA Programme (http://www.meteoalarm.eu/en_UK/0/0/BA-Bosnia-Herzegovina.html). FHMZ and RHMZ do not participate in OPERA Programme, but recently FHMZ began to receive, and use radar images from the Croatian Meteorological and Hydrological Service (DHMZ).</p> <p>There is a need to improve data exchange in the sub-region, including radar images.</p> <p>The potential of EMMA Hydrology for hydrological warning and impact information exchange needs to be explored.</p> <p>More in general the cooperation within the the framework of EUMETNET Forecasting Programme, like Nowcasting, C-SRNWP, SRNWP EPS and Eumetcal Projects, needs to be explored.</p>
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	<p>are basis for “enabling environment” for DRR, as well as for other activities from the scope of protection and rescue against natural and other disasters. Framework Law is, bearing in mind procedure and way of its adoption, mainly complementary with entities’ laws. But, due to fact that Ministry of Security adopted numerous bylaws deriving from this law which are made without consultations of entities’ institutions and which are adopted without consent of Republika Srpska institutions, we cannot agree with the statement that the Framework Law is complementary with laws/plans of the entities and municipalities. As far as law and bylaws that regulate area of environment are concerned, including relevant plans, all of them are regularly updated, amended and filled.</p> <p>Cooperation between RHMZ and Civil Protection of Republic of Srpska is defined by the law of Republic of Srpska. There are no MoUs signed as both institutions work under the government and have</p>	<p>initial planning for the establishment of one radar station at mountain Vlačić in cooperation with the Federal Agency for Civil Aviation is on-going.</p> <p>Memorandum of Understanding (MoU) on cooperation in meteorology, hydrology and related matters between the Croatian Meteorological and Hydrological Institute and the National Hydrometeorological Services in Bosnia and Herzegovina, that equally represent Federal Hydrometeorological Institute of the Federation of Bosnia and Herzegovina and the Republic Hydrometeorological Institute of the Republic of Srpska, is signed in Zagreb on 17th December 2013. It is particularly important to emphasize the fact that, among other things, hydrometeorological services in Bosnia and Herzegovina now have</p>		<p>There is a need to integrate data rescue and data management components into specific climate research or climate services related projects and activities [presumably jointly on sub-regional scale].</p>		<p>GME model, along the improvements at RHMZ regarding collection of real-time data, there is an urgent need for additional capacity building and hands-on training in this area.</p> <p>The is no hydrological forecast capability at FHMZ.</p> <p>A Crisis Operations Centre situated in the Sector for Protection and Rescue of the Ministry of Security of BiH is exchanging data and warnings with Civil Protections entity level. There is an urgent need for establishing SOPs for data and warning exchange between FHMZ and RHMZ. EMMA and EMMA Hydrology could play a role in the technical implementation.</p> <p>CPA-RS: Based on risk assessment in RS, we are carrying out production of plans in domain of protection and rescue, and currently the plan of preventive action is being developed. Until new plans are adopted, existing plans, made in accordance with previous methodology, will remain in force.</p>	
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	<p>very close cooperation. Director of RHMZ is a member of Republic Headquarters for emergency situations.</p> <p>FBIH-RHMZ Cooperation: The cooperation between FHMZ and RHMZ resulted in implementation of the Meteo Alarm system in Bosnia and Herzegovina. The cooperation between the two hydrometeorological services was fruitful in DRR activities in 2011, when FHMI and RHMZ were involved in preparation of Risk assessment of Bosnia and Herzegovina from natural and other disasters.</p> <p>There are no Standard Operating Procedures adopted between both services and DRM agencies. There is an urgent need to draft and adopt SOPs for the work of the two NMHSs in Bosnia and Herzegovina, and to establish Quality Management Systems (QMS).</p>	<p>access to Croatian meteorological radar network. It now covers part of BiH and in the near future, with the entry into operation of new radar system in Croatia, coverage will be far better.</p> <p>RHMZ: There is no radar network, but Public institution for hail suppression in RS has a project for installing two radars in near future.</p> <p>There is a need to strengthen the observation network by developing remote sensing systems, including one upper-air station, one or two weather radars and a lightning detection system. There is a strong need to coordinate any of these plans and activities in Bosnia and Herzegovina with other NMHS from the Western Balkans.</p>				<p>There is a certain progress in the development of seismic maps through NATOSfP Project “Harmonization of Seismic Hazard Maps for Western Balkans Countries” (http://www.wbalkanseis.micmaps.org/index.php/home).</p> <p>Further capacity development in this area is required as well as in the enforcement of “building codes”</p> <p>Flood risk mapping and assessment including cross-border and regional components: Under the Sava Commission, WBIF application has been recently prepared: “Improvement of Joint Actions in Flood Management in the SRB”. FHMI is among Beneficiaries. Following activities outputs are anticipated by this project:</p> <ol style="list-style-type: none"> 3. Flood Risk Management Plan for the SRB, including Programme of measures 4. Flood Forecasting and Warning System for the SRB <p>Whereas there is some experience in running NWP models in both services, and with the</p>	
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						<p>recent improvement at FHMZ on agreement with DWD to use COSMO, and GME model, along the improvements at RHMZ regarding collection of real-time data, there is an urgent need for additional capacity building and hands-on training in this area.</p> <p>Single European “112 system” for collecting/disseminating information on emergency situations: Currently, within the Sector of Protection and Rescue of Ministry of Security of BiH, operative and communication center BiH 112 (OKC BiH 112) has been established. It has operative responsibility, on level of BiH, in case of disasters with trans-boundary effects and for international cooperation, primarily in domain of informing, i.e. exchange of data, and in domain of requesting, accepting and providing international assistance.</p> <p>In Republic of Srpska, responsibility to establish single European emergency number 112 has Ministry of Interior – Civil Protection Administration. In RS there is an emergency</p>	
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						<p>121 number established, and it presents interim solution until establishment of emergency 112 number.</p> <p>There is a need for further capacity development regarding the 112 system in Bosnia and Herzegovina.</p>	
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