

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

Beneficiary	Recommendations						
	<i>Institutional framework/ enabling environment</i>	<i>Observational networks</i>	<i>Telecommunications and Computing</i>	<i>Data management</i>	<i>Forecasting system</i>	<i>Risk assessment/EWS/ Preparedness&Response</i>	<i>Regional/International cooperation</i>
CROATIA	Newly adopted Critical Infrastructure Act envisages the Rulebook on methodology for drafting risk assessments for owners/managers of critical infrastructures (adoption in process).	There is a need to further strengthen the observation network by developing remote sensing systems, including 6 dual-polarization weather radars.	There is a need to modernize the telecommunication network in both, meteorological and hydrological stations (e.g. data from hydrological network are collected by post, telephone or GSM network).	There is solid climatological and hydrological data base of historical time series including manipulation tools. Nevertheless, there is a need for data rescue programme to digitize and quality ensure the remaining historical data.	Further work on improving nowcasting which is under development (availability of weather radar and/or high-resolution satellite cloud images is crucial precondition for this development).	NPRD and DHMZ hydro meteorological information and warning exchange is regulated by SOPs.	A regional harmonization of watch and warning systems should be promoted (in relation to EMMA). The potential of EMMA Hydrology in relation to hydrological warnings and impact information exchange should be explored. Cross-border exchanges of real-time data, forecasts and warnings should be ensured through escalation procedures in case the agreed international SOP do not guarantee the information flow vital for the emergency agencies. Progress with the “Zagreb Initiative” on the establishment of a Sub-regional (WIS-DCPC/WIGOS) Marine Meteorological Centre for the Adriatic Sea Area.
	New Civil Protection Act is being drafted which is to replace the existing Protection and Rescue Act. It will include European standards for development of risk assessments and disaster risk reduction policies.	There are needs to modernize the hydrological and meteorological real-time data collection and dissemination of information.	Observation meteorological and hydrological network has a telephone, modem, GSM, GPRS connection with DHMZ server at DHMZ headquarter building in Zagreb.	There is a need to adopt automatic quality control systems for real-time hydrometeorological data.	Intensify the work on operational hydrological forecasting and modeling (DHMZ with its partners Croatian Waters and National Electricity Company).	NPRD runs the “112 system” on 24/7 basis and it is fully operational for receiving, processing and forwarding information.	
	Croatian Government decision on risk assessment for the territory of the Republic of Croatia is being drafted along the European Commission Risk Assessment and Mapping Guidelines for Disaster Management.	There are needs to further automatize the hydrological, meteorological and marine observation systems and to increase the number of automatic stations.	Relocating the DMHZ to a new premises would allow for a high performance computing facility to be applied in NWP for which there is an urgent need.	Further investment is needed in data archival and retrieval system including additional data storage system for NWP and climate modeling.	There is a need to improve the horizontal resolution of the operational NWP model from 8km to higher resolutions, including very high (cloud resolving) resolutions required for hydrological modeling.	DHMZ use OPERA and EMMA cross-border information. There are some problems with cross-border criteria in EMMA which needs cross-border and possibly ZAMG attention.	
	The Protection and Rescue Plan for the Republic of Croatia is being updated and the procedure is coordinated by the NPRD (National Protection and Rescue	There is a need to improve lightning detection network.		Improve the tools for graphical representation of data and products.	There is a need to improve the horizontal resolution of the operational NWP model from 8km to higher resolutions, including very high (cloud resolving) resolutions required for hydrological modeling. Further work on regional data assimilation for NWP is recommended.	There is a joint effort with the NHMS of Slovenia (ARSO) and Croatian Waters for hydrological forecasting (EFAS is used only for large river basins like Drava and Sava). A joint effort is needed in training both DHMZ and NPRD staff in multidisciplinary topics.	
						The NRPD web site is regularly updated with current DRR events and issues.	

	<p>Directorate).</p> <p>There is a need to further the work on establishing the Croatian National Platform as a legal entity and to integrate its mandate and competencies into the legal and regulatory framework as the basis for further capacity development.</p> <p>Republic Seismology Survey (RSS) is involved in National Platform DRR meetings together with NPRD, DHMZ and Croatian Waters.</p> <p>There is a pressing need for DMHZ to relocate to a new premises in order to ensure reliable and continuous data communication and exchange, and production of NWP based weather forecasts which are critical for DRR.</p>					<p>There is no single point with a disaster losses database. (National Disaster Observatory) .</p> <p>The Ministry of Environment and Nature Protection is developing a strategy for adaptation to climate changes including risk reduction due to extreme events and climate events.</p>	
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