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## Assessment of flooding impact on water supply systems: a comprehensive approach based on DSS

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The assessment of flood impact on a Water Supply System (WSS) requires a comprehensive approach including several scales of analysis and models and should be managed in the Water Safety Plans (WSP), as recommended in the EU Water Directive 2020/2184. Flooding can affect the quality of groundwater and surface water resources and can cause supply service interruption due to damaged infrastructures. A complete approach to address flood impact on WSS is required but is not yet available, while only specific aspects were investigated in details.

In this context, the MUHA project, funded by the European INTERREG V-B Adriatic-Ionian ADRION Programme 2014-2020, developed a comprehensive tool named **Water Safety Planning Procedures Decision Support System (WASPP-DSS)**. The tool is mainly addressed to small water utilities (WU) for supporting WSP development and is based on two main premises: 1) a correct approach for WSS risk analysis requires a multi-hazard perspective encompassing all the system components and different hazards; 2) other institutions in addition to WUs have to be involved in WSS risk analyses to harmonize monitoring and response procedures.

The tool was tested on six pilot areas of the ADRION region considering four hazards: drought, flooding, accidental pollution and damage to infrastructure due to earthquakes. In this work, the tool is demonstrated for flooding impact analysis in three pilot areas: the Ridracoli reservoir in Italy and two municipalities, Larissa in Greece and Zadar in Croatia. The WASPP-DSS, tested by eight WUs, was found a potentially valid support for small WUs that must start drafting the WSP in a comprehensive way and can provide a common shared scheme.

Improvements are desirable, as including a specific section to consider the issue of loss of water resources from reservoirs due to overflow.