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The role of hydraulic analysis in the development of Flood Risk Management Plans

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ABSTRACT

Flood Risk Management Plans (FRMPs) are strategic documents of the final stage of the EU Flood Directive implementation, and as such they framework all the future flood protection activities in Poland. The Danish Hydrological Institute (DHI) was responsible for the development of FRMPs in the Upper Vistula and Small Vistula water regions, being one of the most flood-prone regions in Poland that have suffered heavy flooding in the past.

One of the important steps of FRMPs development was to find the most appropriate set of flood protections measures that minimize potential negative consequences of the flood for the life and health of people, environment, cultural heritage and economic activities. In total, 620 rivers with total length of approximately 8330 km were taken into account. Various scenarios of set of flood protection measures were considered, including, e.g., construction of polders and reconstruction of selected dikes along Vistula river, or dry dams, diversion canals and dikes for other rivers. Final recommendations for flood protection measures were based on cost-benefit and multi-criterial analysis, which took into account flood risks and flood damages calculated based on hydraulic simulations of above mentioned scenarios.