Level of expertise required	Low to Moderate
Synergies with other indicators	Directly related to all indicators the *Natural and Climate Hazards* indicator group
Connection with SDGs	SDG 9 Industry, innovation and infrastructure, SDG 11 Sustainable cities and communities, SDG 13 Climate action
Opportunities for participatory data collection	No opportunities identified
Additional information	
References	

6.21 Flood hazard

Project Name: RECONECT (Grant Agreement no. 776866)

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Flood hazard	**Natural and Climate Hazards**
Description and justification	Flood hazard is the condition referring to the potential of the hydro-meteorological phenomena to cause harm to humans and objects.
Definition	The probability that a flood of a particular intensity will occur over an extended period. There are many dimensions (water depth, velocities, durations, debris. etc.) to flood hazard.
Measurement procedure and tool	Flood hazards typically rely upon the results from computational models. The simplest computational flood hazard models are based on hydrological models which represent the processes by which rainfall is converted into run-off. Hazard can be determined from a simulation using combined 1D and 2D hydrodynamic model models. The models that can be used are HEC-RAS 1D-2D, DHI MIKE FLOOD software, SOBEK, Delft 3D and other. 1-Dimensional (1D) models are simplified models that characterize the terrain using the channel data (i.e., a cross-section of both main ricer and tributaries, river

	network, structure and roughness), and observation data (i.e., rainfall, water level and discharge data). At each cross-section, the flow depth and velocity perpendicular to the cross-section is computed. 2 Dimensional (2D) models calculate the flow both parallel and non-parallel to the main flow Component of the model consisted of the topographic data (i.e., digital elevation model (DEM)) of the area. Aerial LiDAR data can also be used as topography data for the 2D modelling by generating DEM of the area. They are useful for modelling areas of complex topography.
Data source	
Required data	List of data that can be used to assess the flood hazard, the following examples of data can be used: • Rainfall time series • Discharge time series • Information on surface properties including roughness, permeability and topography • Data on the layouts and geometry of channel networks including elevations, diameters and the properties of any control structures.

Monitoring technique	List the techniques that can be used to collect these data and expand on the steps needed to obtain these data. In particular, to collect data for flood hazard assessment, these are possible techniques:
	• Ground measurement
	• Geospatial data, for example
	  • Satellite data for flood events
	  • Satellite data
	LiDAR

Data collection frequency	Hourly, daily
Level of expertise required	Good. Permission maybe required if accessing large quantities of data and the duration for which the data will be assessed
Synergies with other indicators	Flood vulnerability Reduction of damage costs
Connection with SDGs	SDG 11
Additional information	
References	