Group P (general preparedness) expresses the general preparedness of society for flood management and control. It reflects flood awareness, the understanding of activities and behaviour during floods, etc. This is also related to the initiatives of flood committees, their response to hydrologic forecasts and flood warnings and subsequent evacuation and rescue activities. Its value is determined by assessing the following items P_i closely corresponding with general preparedness and the aforementioned contributing factors:

- P_1 - flood awareness and general knowledge about flood hazards,
- P_2 - flood memory, frequency of flooding in the area of interest,
- P_3 - existing flood documentation (flood extent maps, flood management plans),
- P_4 - understanding of activities and behaviour during floods,
- P_5 - initiatives and activities of flood committees,
- P_6 - response to hydrological forecast,
- P_7 - response to flood warning,
- P_8 - evacuation and rescue activities, level of training of personnel.

The items P_i mentioned above are semi-quantitatively scored in the range ⟨-1, 1⟩. Some guidance for the scoring is given in Table A. General "aggregated" preparedness P (also in the range ⟨-1, 1⟩) is determined using the formula:

$$P = \frac{1}{8} \cdot \sum_{i=1}^{8} P_i \,, \qquad (1)$$

where P_i represents the scores of items mentioned above. Here -1 denotes a completely unsatisfactory state, +1 represents an excellent state.

Group W (warning) includes factors influencing the warning of the population. The assessment is analogous to the case of group P. Contributing factors such as the hydrological forecast, the speed of the flood's arrival, the warning system and the rate of water level rise were included in the analysis. The following items W_i have to be assessed:

- W_1 - hydrologic forecast, its reliability, meteorological models used, etc.,
- W_2 - speed of the flood's arrival, which significantly differs for upper and lower sub-catchments, for flash and regional floods,
- W_3 - warning system, existence of digital on-line alarm systems,
- W_4 - expected rate of water level rise.

These items are semi-quantitatively scored in the range ⟨-1, 1⟩ in a manner analogous to the case of group P. Guidance on scoring is given in Table B. The general "aggregated" effect of warning W (in the range ⟨-1, 1⟩) is determined using the formula:

$$W = \frac{1}{4} \cdot \sum_{i=1}^{4} W_i \,, \qquad (2)$$

where W_i represents the scores of items mentioned above.

Table A. Guidance on the scoring of general preparedness items P_i

P_i	Score				
	-1.0	-0.5	0.0	0.5	1.0
P_1	No flood awareness or knowledge about flood hazard, sometimes ignorance	Poor awareness, underestimation of flood hazard	Common flood awareness	Fair knowledge about flood hazards obtained mostly from the media	Excellent knowledge about flood hazards via the media, education, training, etc.
P_2	Area never flooded, no experience with flooding	Area flooded decades ago, poor records concerning flood losses	Area flooded decades ago, good records concerning the risks	Flooding still in the memory of the population	Personal experience with flooding
P_3	Flood extent maps or flood management plans not available	Existing flood extent maps are outdated	Flood extent maps drawn up based on current hydrologic data, but only poor flood management plans exist	Flood extent maps drawn up, flood management and evacuation plans available	Flood extent maps drawn up, updated digital versions of flood management and evacuation plans available
P_4	Individuals have no idea about actions to take during floods	Limited (vague) understanding of what to do during floods	General understanding of what to do before and during a flood	Quite good knowledge of flood management plans and corresponding activities	Perfect knowledge of flood management plans and understanding of what to do in the event of flooding, good preparedness
P_5	No flood committee established	Flood committee established but not trained, only poorly equipped with flood fighting facilities	Flood committee established and generally trained, poorly equipped with flood fighting facilities	Only moderately experienced but trained committee with standard flood fighting facilities	Experienced and well trained flood committee equipped with flood fighting facilities
P_6	No response to hydrological forecast, no understanding or belief	Poor understanding of hydrological forecast and poor response	Approximate understanding of forecast and adequate response	Fair understanding of hydrological forecast and good response	Very good understanding of hydrological forecast and very good response
P_7	No response to warning, no idea about warning procedures and response	Only poor response to warning, warning system not trusted	Adequate response	Good response to warning	Immediate and fast response to warning
P_8	Rescue system does not exist, no staff or equipment available	Organised rescue system does not exist, volunteer basis, no trained staff available with randomly acquired equipment	Poorly organised but functioning rescue system, basic rescue equipment of adequate quality	Functioning rescue system, trained staff with equipment of fair quality	Efficiently functioning rescue system, well trained, experienced and well equipped personnel

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2 Table B. Guidance for the scoring of warning items W_i

W_i	Score				
	-1.0	-0.5	0.0	0.5	1.0
W_1	No hydrologic forecast, forecast not possible (e.g. at small catchments)	Only vague and general forecast	General forecast for medium size catchment	Hydrologic forecast provided in a standard way by hydrologic services	Reliable hydrologic forecast based on contemporary technical and modelling techniques
W_2	Flood may arrive within several tens of minutes	Flood arrives faster than in 45 minutes	Flood arrives within several hours	Flood arrives within one day	Flood arrives within several days
W_3	Warning system does not exist	Poorly designed and functioning warning system	Only moderately reliable warning system	Fully functioning traditional warning system	Sophisticated warning system including digital on-line alarm systems
W_4	Water rises at a rate of several metres per hour (floods in 1998, 2009)	Water level rise about 1 metre per hour (small catchments in 2013)	Rate of several metres per day	About 1metre per day (floods in 1997, 2002)	Water level rise of several metres over several days

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