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MONITOR II

Proposal for legal improvement

Proposal for adaptation of legal frameworks and regulations to new methodologies in Slovenia

Topic: Proposals for adaptation of legal frameworks and regulations to new methodologies in Slovenia
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Date: 23.05.2012

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Proposal for adaptation of legal frameworks and regulations to new methodologies in Slovenia

This document is a proposal for adaptation of a Slovenian piece of legislation: "*Rules on methodology to define flood risk areas and erosion areas connected to floods and classification of plots into risk classes*" (Official Gazette of the Republic of Slovenia, Number 60/2007).

Slovenian legal frame

In Slovenia the legal basis for flood hazard and risk assessment and crisis management of flood events in general is being prepared by two authorities. The Ministry of the Environment and Spatial Planning (MOP) is responsible for hazard mapping while the Ministry of Defence (MO) is responsible for contingency planning on a national level. Like in many other European countries this leads to weaker connectivity of these two activities. Following the standards induced by the European Union through EU Floods Directive Slovenian MOP has established a methodology for flood risk assessment by adopting the "*Rules on methodology to define flood risk areas and erosion areas connected to floods and classification of plots into risk classes*" (Off. Gaz. RS, No. 60/2007), a very concrete regulation which thoroughly prescribes how hazard, vulnerability and risk classes should be defined (Steinman et al., 2008). In a few years entire Slovenian country should obtain unified flood hazard and flood risk maps with common classification of plots into flood risk classes as defined in Slovenian legislation. Nevertheless the main purpose of these flood hazard and risk maps is to provide groundwork for spatial planning. On the other hand the "*Instruction on preparing threat assessments*" (Off. Gaz. RS, No. 39/1995) prepared by MO is more general and descriptive, also due to the fact that it applies to a very broad range of hazards.

Despite the different approach, when closely examining Slovenian legislation regarding (flood) risk assessment, several similarities between 'risk mapping' (MOP) and 'contingency planning' (MO) approach were recognised (Table 1). The legislative framework prepared by MOP obviously offers some good starting points for creating the so called intervention maps. The essential contents that are missing to meet the needs of contingency planning are mainly related to intervention (location of structures relevant for protection and rescue, foreseen measures, resources etc.) and some additional information on hazard (disaster course, scenarios, disaster forecast).

Flood risk mapping (MOP) versus threat assessment (MO) in Slovenia

	Rules on methodology to define flood risk areas and erosion areas connected to floods and classification of plots into risk classes (Off. Gaz. RS, No. 60/2007)		**Instruction on preparing threat assessments** (Off. Gaz. RS, No. 39/1995)
HAZARD	**probability of disaster occurrence** (return period) Q_{10}, Q_{100}, Q_{500}	–	**probability of disaster occurrence**
	extent – spatial extent of the flooded area for Q_{10}, for Q_{100} and for Q_{500}	–	**possible hazard extent**
	intensity of the flood event for Q_{100} [water depth and product of water depth and velocity]	–	**probable disaster consequences**
			hazard sources
			possible causes of disaster occurrence
			disaster course
			chain disaster occurrence probability
			options of disaster forecast
VULNERABILITY	**population density**	–	**endangered population** buildings density
	economic and non-economic activities buildings	–	**endangered animals and property** economic and energetic characteristics of endangered area
	buildings and devices that can cause pollution	–	location of structures that additionally threaten surroundings
	cultural heritage	–	**endangered cultural heritage**
	sensitive structures	–	location of structures relevant for protection and rescue*
INTERVENTION			location of structures relevant for protection and rescue* **recommendations for operation of protection, rescue and relief and prevention respectively mitigation of disaster's consequences**
	risk classes	–	type, form and degree of risk

* Some structures are relevant for protection and rescue because of their high sensitivity respectively vulnerability (e.g.: kindergartens, schools, homes for the aged etc.). Some are relevant because of their active role in crisis management (e.g. civil protection headquarters, fire brigade, emergency shelter etc.). Hospital is an interesting example of a structure that is very vulnerable (if it had to be evacuated a lot of help would be needed) and at the same time it can be active by provision of medical care to wounded people.

Proposal for adaptation of legal framework regarding flood hazard and flood risk assessment in Slovenia

Contingency planner has to complete the information which is missing after the process of hazard assessment. Nevertheless it doesn't make much sense to make two separate hydraulic models – one for spatial planning and one for contingency planning. If a hydraulic model is structured for the needs of spatial planning it would be a pity not to take the advantage of the results that a flood hazard assessment can provide to a contingency planner.

The current piece of legislation ("*Rules on methodology to define flood risk areas and erosion areas connected to floods and classification of plots into risk classes*"; Off. Gaz. RS, No. 60/2007) prescribes that only spatial extent of the flooded area (outline border of the hazard zone) has to be defined for all considered flood return periods (10 years -, 100 years -, and 500 years – floods); while intensity classes are defined only for flood with reoccurrence period of 100 years.

Flood hazard assessment parameters that have to be defined in accordance with articles of the "Rules on methodology to define flood risk areas and erosion areas connected to floods and classification of plots into risk classes" (Off. Gaz. RS, No. 60/2007):

flood return period	spatial extent of the flooded area	height of water (h)	velocity (v)	momentum (v · h)
10 years	✓	/	/	/
100 years	✓	✓	/	✓
500 years	✓	/	/	/

We propose additional scenario(s) when sensible – these scenarios should consider possibilities of structure failures (for example: dike collapse, weir collapse) in the investigated area. We propose that spatial definition of intensity classes (for height of water, for velocity, and for momentum) becomes obligatory for all considered flood hazard scenarios and not just for the 100-years flood.

Flood hazard assessment parameters – proposed to be defined:

flood return period	spatial extent of the flooded area	height of water (h)	velocity (v)	momentum (v · h)
10 years	✓	✓	✓	✓
100 years	✓	✓	✓	✓
500 years	✓	✓	✓	✓
structure failure	✓	✓	✓	✓

We also propose that beside the spatial layers as polygon features also points - hydraulic critical points should be defined (e.g. bridge openings that are too small, road culverts that are too small).