



Natural hazards in the formal education system in Serbia

- facts and experiences -

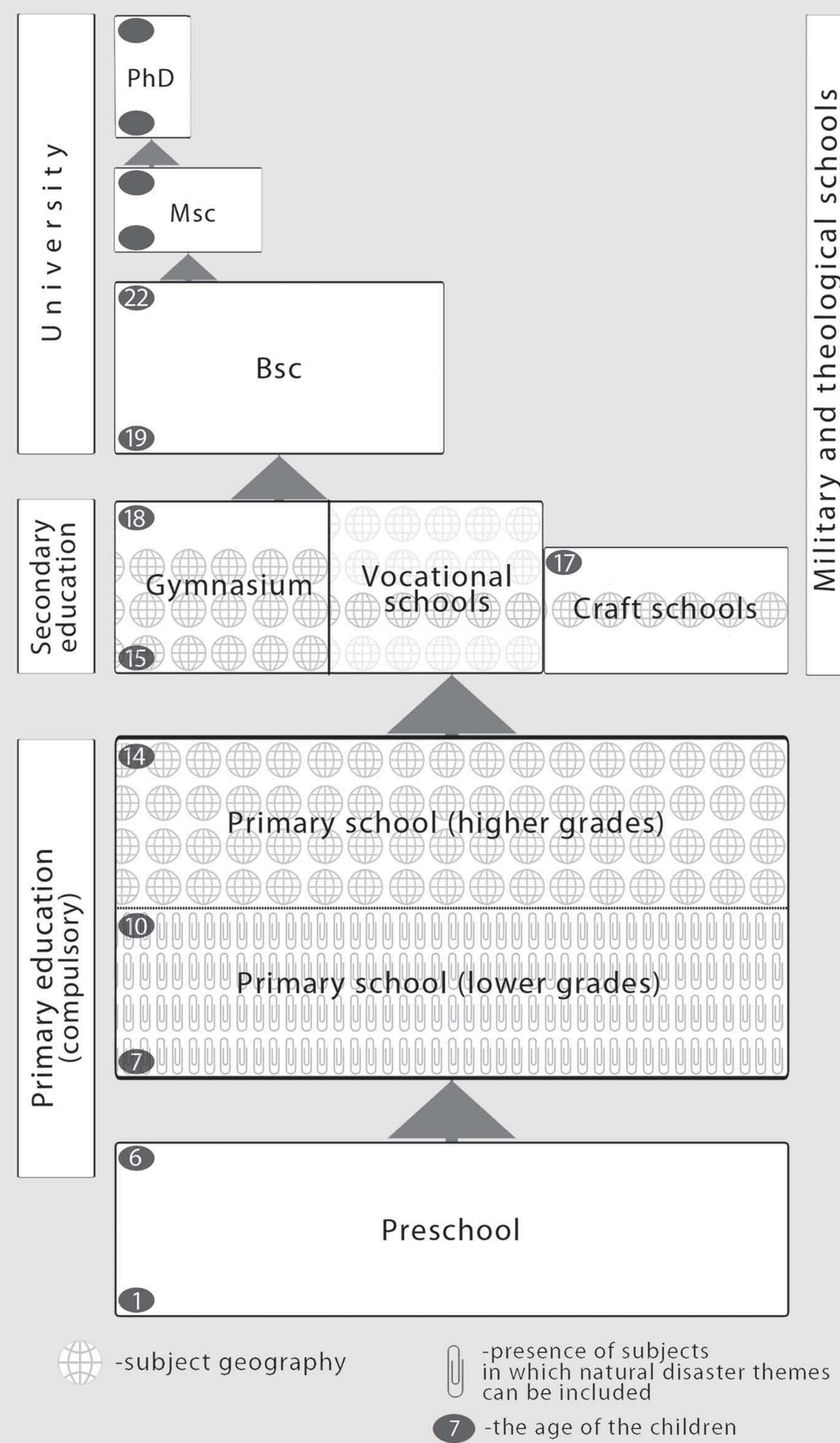


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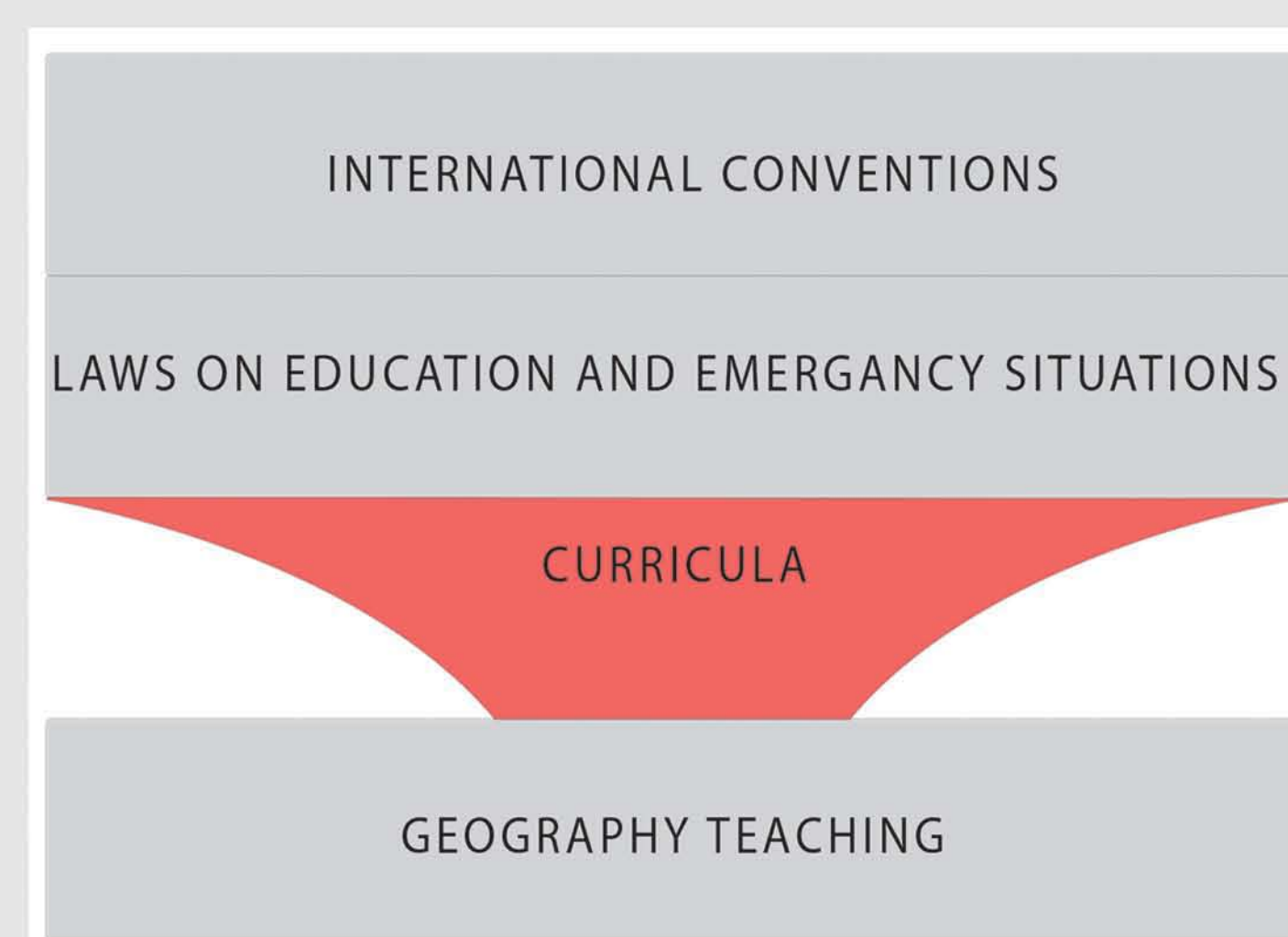
Abstract

We present the current situation in the Serbian formal education system with respect to the issues of natural disasters and resilience of the society. The role of obligatory education (through primary and secondary schools) is considered essential, thanks to the fact that the majority of the population acquire this type of education. Although a certain number of natural hazards is covered by the curricula of several subjects (mainly Geography), the hazards are treated almost exclusively as natural processes of increased intensity, and not through their impact on society and its transformation. Therefore we cannot say that the disaster risk reduction is included in the formal curriculum. The analysis covers three main aspects: the legal framework (the background which enables the formal teaching about natural disasters), the present curricula (seen through the contents of geography textbooks) and the present state of the disaster-related knowledge among the pupils. The latter is shown through the results of the poll survey carried out among the pupils in earthquake-struck town of Kraljevo (M 5.4 in 2010). Although the children are highly aware of the need for better coverage of risk reduction in their education, they are not aware that their reactions during the earthquake event were mostly improper. Disaster-related professional trainings for teachers, approved by the Ministry of Education, aim to motivate teachers to include the disaster risk reduction issues into the teaching process even before the formal inclusion of these issues into the curricula.



Without diminishing the importance of informal learning, we insist on the role of formal and compulsory education, considering the fact that the majority of the population acquire this type of education. In Serbia, according to official statistics, about 70,000 pupils enroll each year in the 1st grade of primary school, which is compulsory and lasts for eight years (Statistical Survey of Serbia, 2012). Through eight years of primary education (with more than half a million pupils), the elements of hazard education are included through the subjects "Nature and Society", "The World Around Us" (1st to 4th grade) and especially Geography (5th to 8th grade).

Geographical knowledge, by joining and overlapping of physical (natural) and human (social) elements, is often regarded as a knowledge "for living", having daily and vocational applications (Gritzner 2004). According to Mitchell (2009), geography is the natural academic "home" for teaching about hazards.



Legal framework for the establishment of Risk education in Serbia. The Curricula are a bottleneck not properly transferring the legislation-provided possibilities towards the schools.

The overview of natural hazard issues in the Serbian geography textbooks.

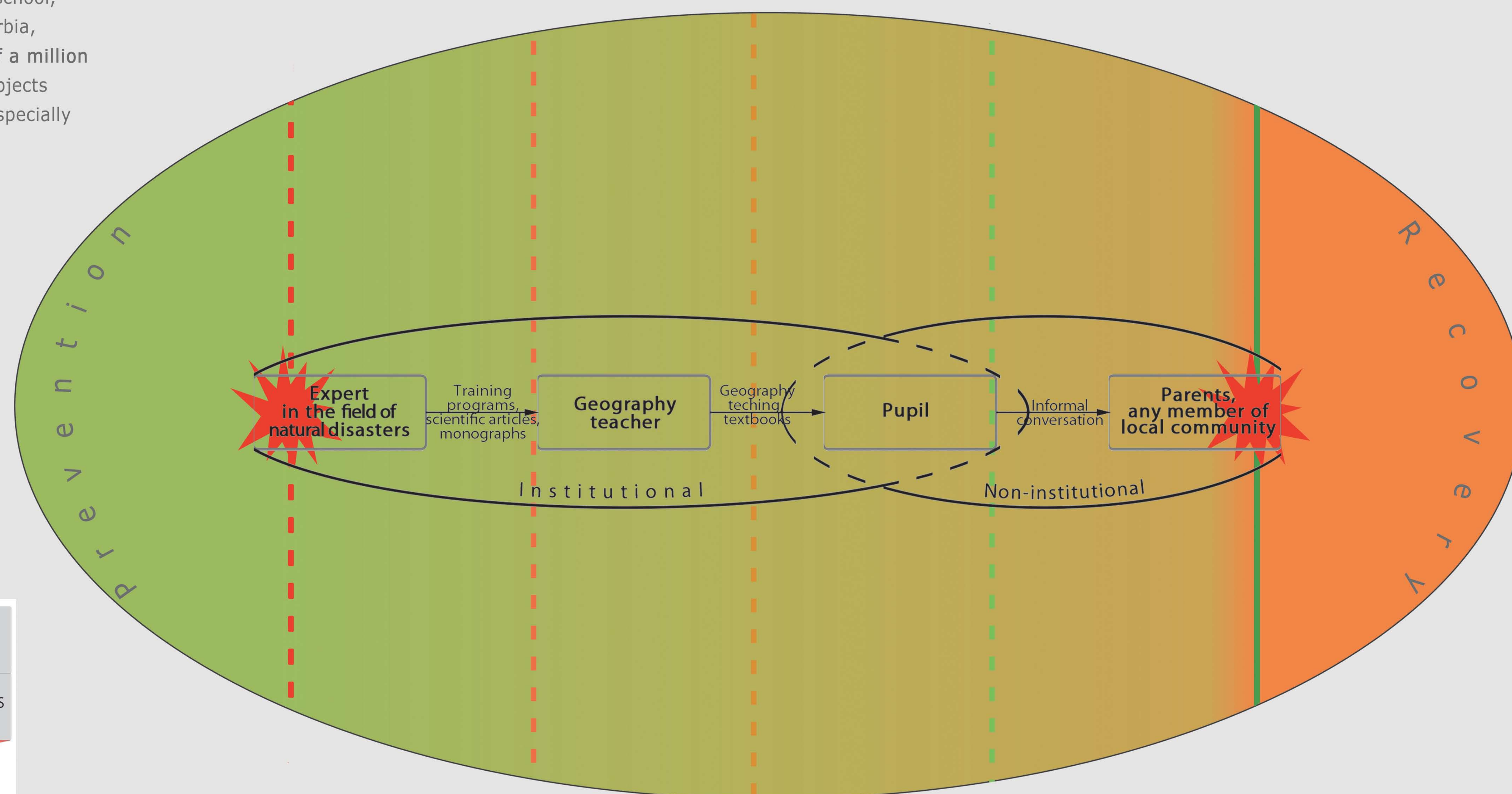
Natural disaster		Primary school (grades)				Secondary school – gymnasium or vocational education (grades)							
		V	VI	VII	VIII	I		II		III		IV	
						gymn	voc	gymn	voc	gymn	voc		
Disasters of extraterrestrial origin	Meteorites	▲	/	/	/	▼	/	/	/	/	/	/	/
	Earthquake	▼	▲	▲	/	▼	/	/	▼	▲	/	/	/
Geophysical disasters	Volcano	▲	▲	▲	/	▲	/	●	▲	/	/	/	/
	Tsunami	▲	/	/	/	▼	/	/	/	/	/	/	/
	Hillslope processes	▲	/	/	▲	▼	/	/	▲	▲	/	/	/
	Meteorological disasters	Tornado	/	/	▲	/	▲	/	/	/	/	/	/
Hydrological disasters	Tropical cyclone	/	/	▲	/	▲	/	/	/	/	/	/	/
	Floods	/	▼	●	▼	/	/	▲	▼	▼	/	/	/
	Avalanches	/	▼	/	/	▲	/	/	▲	/	/	/	/
Climatological disasters	Extreme temperatures	/	/	/	▲	▲	/	▲	▲	▲	/	/	/
	Drought	/	/	▲	/	▲	/	/	▼	▲	/	/	/
	Hail-storm	▲	/	/	/	▼	/	/	▼	/	/	/	/
	Wild fire	/	/	/	▲	▲	/	/	/	/	/	/	/

Legend:
▲ – studied only at the level of hazard (natural process)
▼ – studied as a natural disaster
● – treating a hazard in a positive context (see details in the text)
/ – not studied at all

These processes are presented as hazards (natural processes) and not as natural disasters (there are no relations with the community response). E.g. Earthquakes lesson (5th grade) stresses the functioning of plate tectonics, without instructions on how to properly behave during an earthquake.

Many Serbian textbooks describe the M 9.1 earthquake in the Indian Ocean in 2004, while none mentions multiple M 5 events in Serbia, which in fact have much greater impact on the real everyday situations.

None of the greatest natural disasters in Serbia in the period 2000-2013 has been mentioned in geography textbooks up to now – there is neither temporal nor spatial coordination between the Serbian natural disasters and Serbian geography textbooks.



Kraljevo

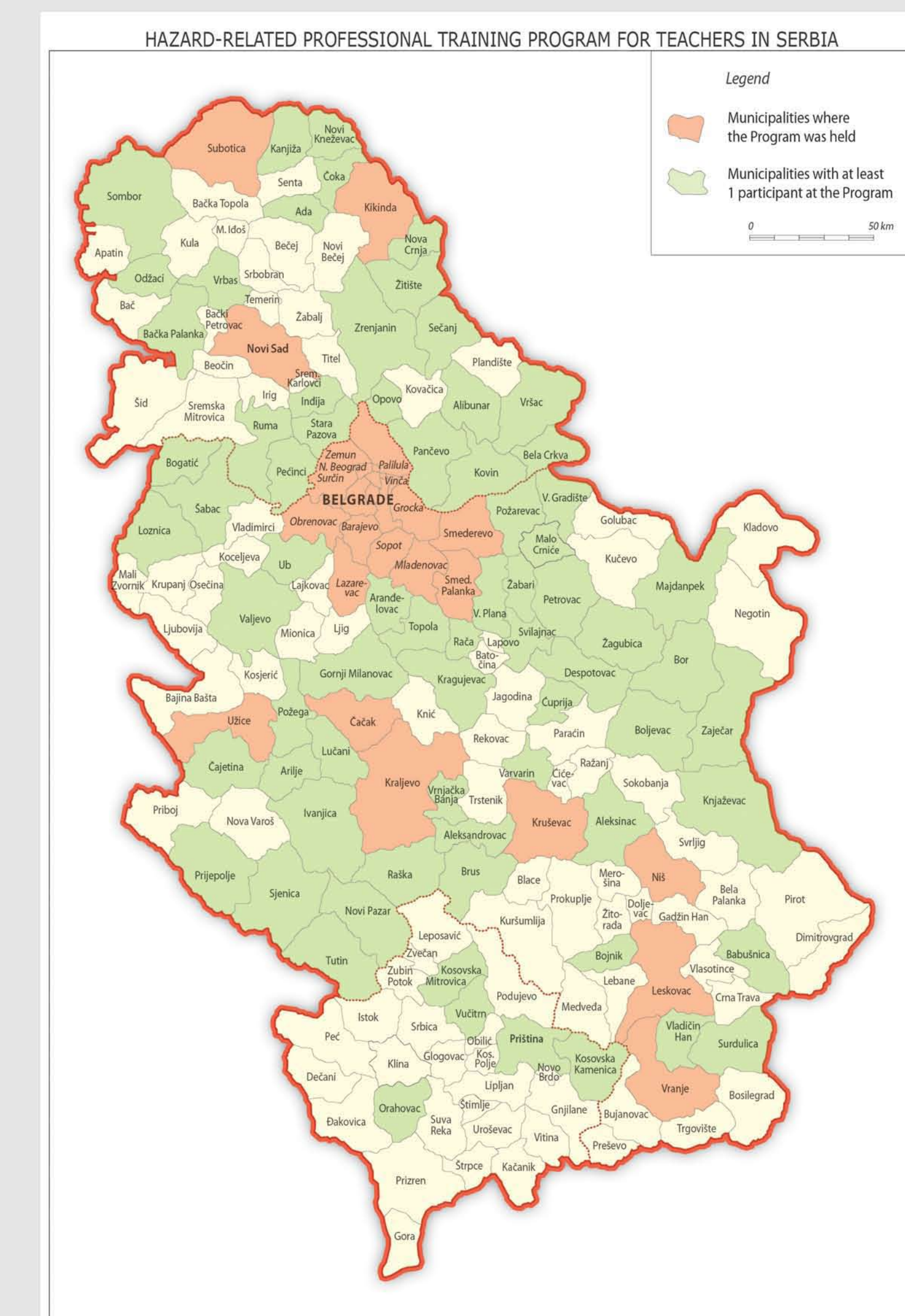
The analysis of children's behaviors, feelings and knowledge in case of a natural disaster

- Poll survey in the earthquake-struck town of Kraljevo (M 5.4 in 2010)
- 839 primary school pupils (aged 11-15; 5th to 8th grade)
- 16 months after the event
- 64% reacted improperly during the earthquake
- only 13% reacted in a proper way – crouched under a table or under a door frame
- 51% thought that they acted correctly (although they did not)
- No awareness!
- 65% of pupils thought that the existing material in geography textbooks "should be expanded with the instructions on how to behave during an earthquake"

Programs for professional training of geography teachers
– network of Program participants

Natural Disasters and Geography Teaching
(2008-2014)
699 teachers (about 20% of the total number of geography teachers in Serbia)

How to protect ourselves from natural disasters?
(2014-2018)
136 teachers since October 2014



Conclusions

- presently we only have a partial hazard education, but still not a proper risk education
- before the new regulations are enacted, the teachers' interventions in the teaching process must compensate the present limitations.
- Initiative for the inclusion of DRR into official educational standards (educational standard = knowledge and skills which a pupil is expected to show)
- We suggested to the National Education Council that the DRR elements are supposed to have the status of the basic standards, which are to be reached by more than 80% of schoolchildren
- we started with small, yet effective steps in the direction of disaster risk reduction: (1) professional trainings for teachers and (2) initiative for curricula adaptation
- until the curricula is adapted, teachers have to include the DRR concepts upon their own initiative

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