

# Information for Western Balkan countries

**Project title:** Development of master curricula for natural disasters risk management in Western Balkan countries

**Acronym:** NatRisk

**Project number:**

573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP

**Lead Organisation of work package 1:** BOKU

**Participating Organisation:**

UNI, MU, KPA, UPKM, UNSA, VSUP, TCASU, UNIME, OE, UNID, RGU, TUC

Work package	Title
1	Analysis of natural disasters needed to be managed in Western Balkan region
Activity	Title
1.1	Report on natural disasters in WB

*"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein"*

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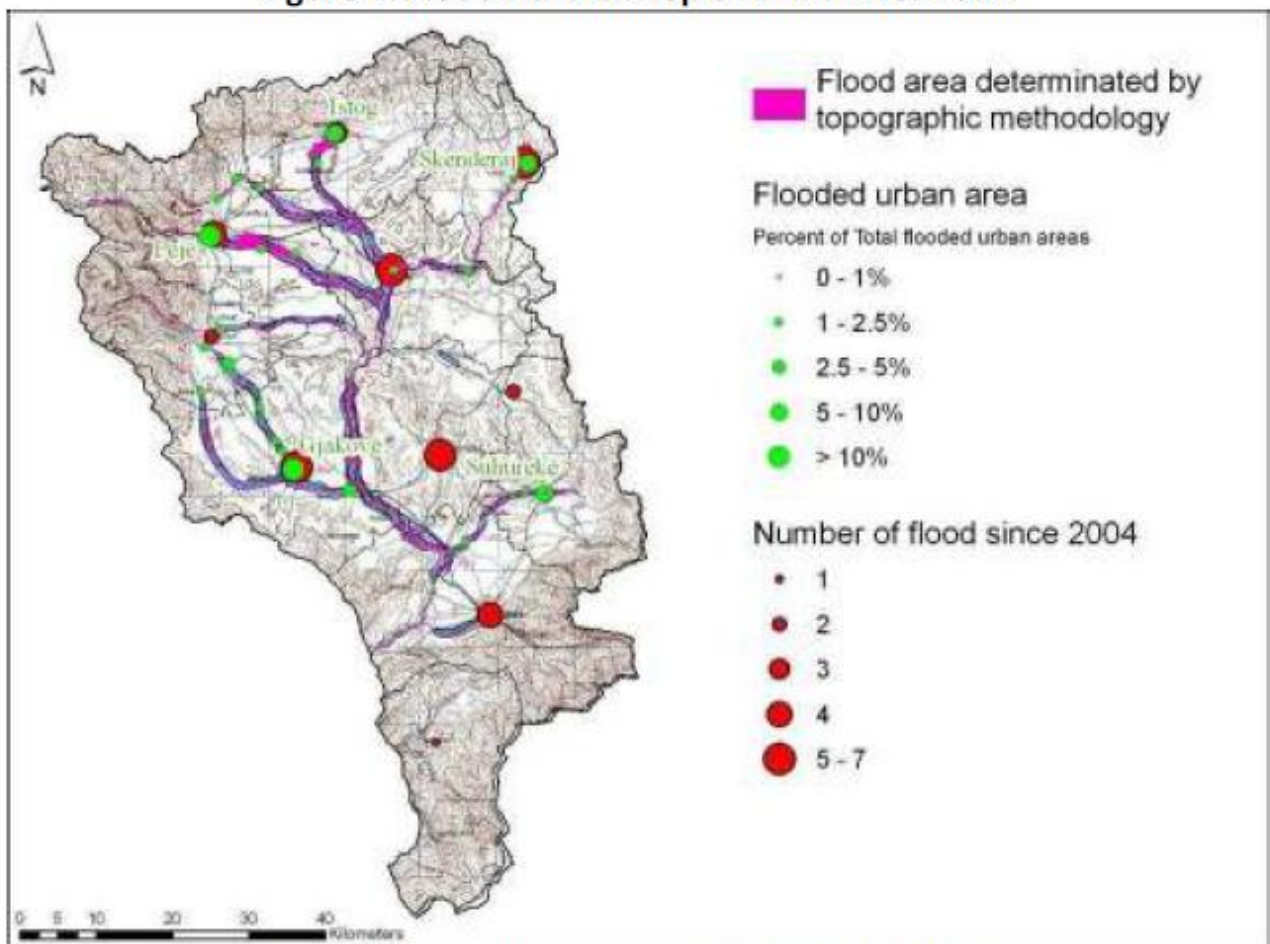
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# 1 Natural disasters in the Western Balkans

## Identification of natural disasters

Kosovo\* is exposed to frequent floods, heavy snowfall, drought, and other meteorological hazards. Most of Kosovo\* is exposed to flooding (as shown in Figure 1 below). Flash floods are common in mountain areas (where average annual precipitation is as much as 1750 mm per year), while river floods occur in plains and lowlands. Floods also trigger occasional mudflows in mountain areas. Outburst floods are a threat to Pristina, Mitrovica, Podujevo and Dakovica, due to the structural vulnerability of dams. In some highly exposed rivers basins (such as the Drim n the western part) floods occur every 2-3 years. Urosevac city was struck by a severe flood that affected the southern part of the city in 1973. Between November of 2007 and June of 2008 three floods displaced 3,500 people and damaged homes and agricultural land, which necessitated humanitarian assistance from the international community.

**Figure 1: Flood Hazard Map of Drini River Basin**



Source: Kosovo Water Project, [www.kosovo-water.eu](http://www.kosovo-water.eu)

\*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo Declaration of Independence

Kosovo\* is regularly exposed to both meteorological and hydrological drought. Due to seasonal fluctuations in precipitation, agricultural production in regions with no irrigation is often affected. Water scarcity mainly affects low lying areas in the central as eastern portions of the country. This is due to seasonality of natural river flows and groundwater recharge, as well as poor management of resources. Kosovo\* has been struck by drought several times in the last two decades (1993, 2000, 2007, and 2008).

In 2000 moderate to severe metrological drought covered most of the territory of Kosovo, as shown in Figure 2 below. Since 2004 80% of Kosovo municipalities have suffered from water shortages due to hydrological drought and the misuse of water resources .

Forests comprise 43% of the territory of Kosovo\*. They are especially prone to catch fire at the end of spring and during dry summers. Since 2000 there have been an increasing number of forest fires. Fire brigades and other relevant operational teams have carried out between 2,000 and 3,000 interventions for each subsequent year.

Exposure to hazards such as droughts, floods, and wildfires will become greater with climate change. Climate variability has already increased in the Western Balkans. The past few decades have witnessed a rising intensity of precipitation extremes like heavy rain events, as well as more severe drought, particularly since 1980s. Climate change owing to global warming is expected to accelerate this trend. According to the available projections, higher temperatures will make heat waves and forest fires more likely to occur. Extreme rainfall events and increased variability of river flows will make flooding more frequent and severe. Increased temperatures, more uncertain rainfall, and reduced runoff will heighten exposure to drought .

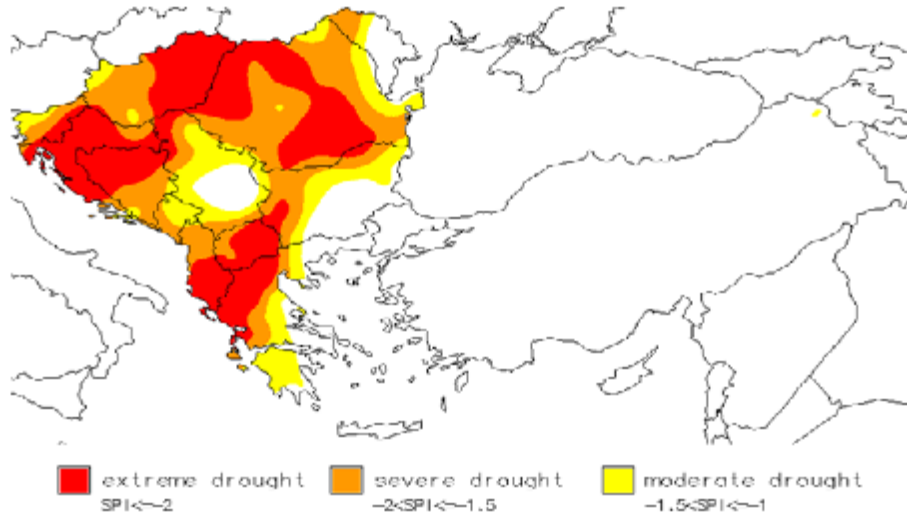
Kosovo\* is located in a seismically active zone, making it susceptible to earthquakes. As shown in Figure 3 below, most of the country is located in a moderate to high hazard zone. Significant earthquakes occurred in Kosovo in 1921 in Urosevac (intensity of IX on the MSK-64 scale and a magnitude of 6.1), in 1980 in Kopaonik region (intensity of VIII degrees and a magnitude 5.9), in 2002 in the Gnjilane municipality (intensity of VIII-IX and a magnitude of 5.7). The latter event resulted in significant structural damage and evacuation of people in the affected villages. The most recent significant earthquake in Kosovo occurred in 2010 in the eastern part of the country and measured 5.2 magnitude according to the Seismological Institute in Pristina. Kosovo has suffered severe levels of destruction on several occasions due to earthquakes that have occurred in the neighboring countries, such as Albania, Montenegro, Macedonia, and Serbia.

Kosovo is also exposed to landslides, particularly in the areas of Mitrovica, Pristina, Pec, and Strpce. At least one-quarter of communities are vulnerable to landslides/rockfalls with an incidence rate probability of 1% (10% over 10 years).

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**Figure 2: Standard Precipitation Index for Western Balkans in 2000**

SPI Aug 2000 (1 month)  
 GPCC&IMG analysis (VASCLIM0)

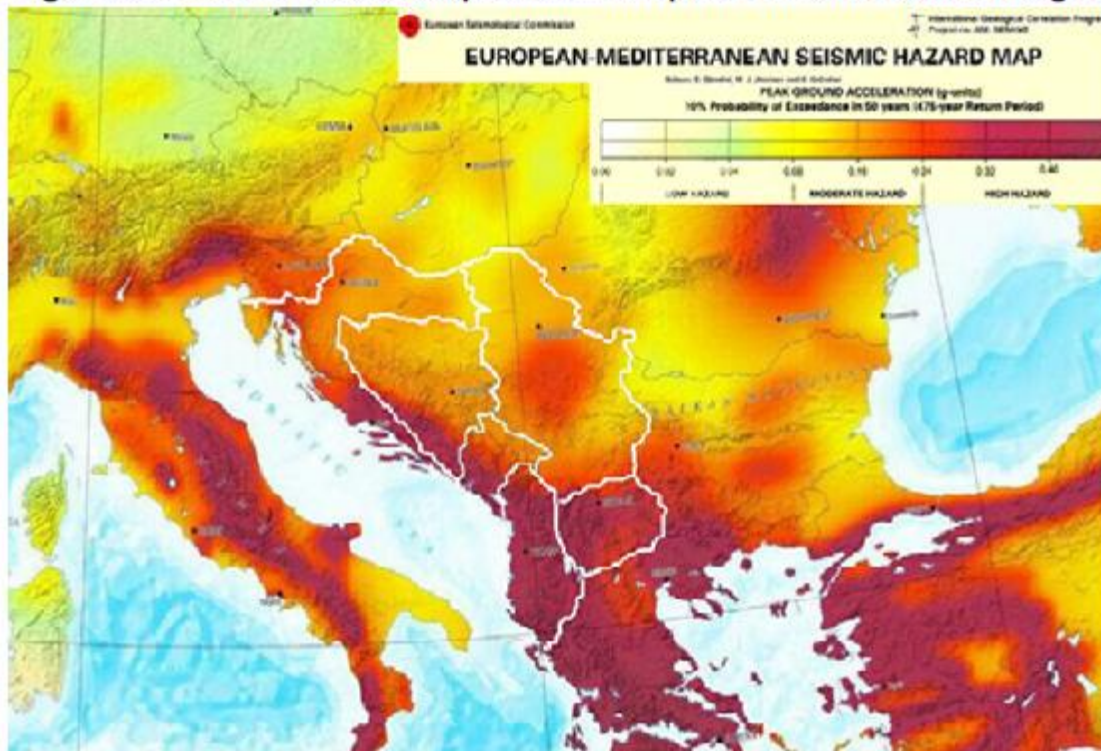


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Source: Drought Management Centre for South East Europe.

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**Figure 3: Seismic Hazard Map of the European-Mediterranean Region**



### 1.1.1 Types of extreme events

In January and February 2012, due to extremely low temperatures and windstorms followed by heavy snowfall, several municipalities in Kosovo have been heavily affected, with many villages being cut off from road traffic and supply of goods. The majority of the affected villages are situated in the rural and poorer areas of Kosovo, and the emergency situation represents an additional hardship in their already difficult situation. Several municipalities across Kosovo were forced to declare states of emergency.

Snowfall and storms caused an avalanche that resulted in ten fatalities in the village of Restelica, Dragash municipality. There were shortages of food and other essential goods, as the population was not prepared for such a harsh winter with extreme weather.

Since the end of the conflict in 1999, Kosovo\* has been experiencing an unprecedented construction boom and urbanization, which is not adequately controlled by the authorities. Structural vulnerability to earthquakes and floods is increased by illegal construction in hazard zones and failure to adhere to building codes (the majority of buildings are out of compliance). Lack of maintenance and destruction during wartime further aggravate this vulnerability. Moreover, inadequate design of drainage and sewage systems in urban areas makes it more likely that floods will form here and that subsequently drinking water supplies will be unprotected.

Inadequate land use and municipal planning places many populations in the way of hazards. This was a significant factor in damages caused by a severe flood that affected Urosevac city in 1973. Moreover, according to a study by the OSCE in Kosovo\*, illegal construction and informal settlements have exploded, informal and illegal transactions continue unabated, illegal occupation of property remains rampant, and the cadastre system and property rights register are incomplete and inaccurate.

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The most recent events on the North of Kosovo\* were floods in 2014.

Heavy rainfalls in April 2014 rains have caused floods leading to significant infrastructure damage to several communities in Kosovo.

The damage was mainly caused by overflowing of the rivers from their riverbeds and flooding of fields, gardens, orchards, meadows as well as construction objects on them. In several cases rainfalls caused landslides blocking roads and damaging property. Due to effects of torrent rains, some parts of the roads were washed away, which resulted in creation of gullies. Water also hollowed out road bases so that some sections of road surface collapsed. Five out of seven bridges over the Ibar River were, to bigger or smaller extent, affected by floods in April 2014. It is also necessary to mention that Kutinje bridge in Leposavić town was destroyed by floods in spring 2013. The character and reasons of the bridge collapse are similar to those of this year damages. In Zvečan municipality private agricultural lands were damaged in Srbovac, Žitkovac, Valać, Grabovac, Lozište and Rudare villages. Altogether ca 150 ha of arable land was under the water. According to the municipal damage evaluation commission report, plots of at least 109 land owners were flooded, although the number could be bigger, because not all of them reported to the municipality. In Banjska village water destroyed 50 m long sustaining wall, which prevented banks from erosion and overflowing. Also surface of many local roads was covered by water. It affected local traffic and contributed to further worsening of the road surface. The main damage in Zubin Potok was caused by a landslide, which buried 80 m of the paved road passing through the rural areas between Velji Breg village and Zubin Potok old town. The road became fully impassable and is closed for traffic.

According to the municipalities damage evaluation commission, the public and private sectors suffered following damage from floods:

*Table 1. Assessed damage from floods in the Northern municipalities*

Agricultural facilities (incl crops and plants)	115141€
Repair of road infrastructure	206617 €
Repair of bridges	132942 €
<b>Total</b>	<b>454700€</b>

In the area of Northern Kosovo\* there are several mines for lead and zinc exploitation. Lead and zinc ore processing waste deposit is situated on the right bank of the river Ibar and it is located on the distance of 1200 m from the location of mineral processing plant. The tailing waste deposit occupies 30 ha of mainly agricultural land and so far there were deposited 3,340,000 t of waste. For its specific content of heavy metals and non metals, toxic components and other polluting substances originated from flotation process, these deposits are sources of the air, soil surface and ground waters pollution. Flotation waste deposit has been exploited since 1980. The major part of the landfill is bordering with the Ibar River, i.e. approximately 1km and has natural limits by the hill on the eastern side. Landfill is characterized by the relatively steep dam slopes on the northern and western sides with surface partly covered by sand and the rest is covered by oxidized pulp with deep erosion canals drills. Landfill remedy has not been done so there are no plants or grass on the surface. As a result, during the windy events the dust from the landfill is spread around and presents potential risk for the town of Leposavić and surrounding villages. When polluted water overflows the banks, it is spread on the fields and leaves pollutants (heavy metals in this case) into the soil. This is how a natural disaster multiplies hazardous impact from environmental pollution and, respectively, mitigation of flood risk will decrease pollutants' impact on people's health and environment.

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## 1.1.2 Photo documentation



Fig. 3. Damaged Dam in Leposavic due to the floods in 2014



Fig. 4. Flooded agricultural land in April 2014



Fig.5. Broken bridge in Kutnje, 2013

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Fig.6. Typical example of a road damaged by flood (March 2013)



Fig.7. Industrial Waste Landfill with erosion faults on the river Ibar bank

## 1.2 Analysis of risk management

### 1.2.1 Established practices for risk management

During last years civil protection system in Northern Kosovo municipalities existed on its own, without any serious development. It was solely oriented towards response, without paying due attention to disaster prevention and risk reduction. This attitude is considered nowadays inappropriate, especially in the region prone to different types of disasters: earthquakes, floods, forest fires, drought, and environmental emergencies.

Kosovo\* disaster management system, although being yet quite response-oriented, has started to consider proper risk assessment and emergency planning as cornerstones of the overall disaster management strategy.

In the interviews some (but not all) Northern Kosovo\* officials considered Disaster Risk Reduction and disaster prevention issues as important; however, there is no system in place to institutionalize those issues and to implement and enforce them. Due to the lack of expertise and proper financing municipalities have never made risk assessments or disaster management plans. In most of the cases individual households are left with responsibility to protect themselves. Municipal authorities and emergency services respond to incidents only *post factum* and don't make any analysis of recent emergencies to improve the situation E.g., excessive snowfalls in winter; floods in spring; drought and forest fires in summer

The local level is responsible for:

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- management system for protection, rescue and assistance at the local level;
- monitoring of risks, warning and alarming the population about potential threats;
- equipment with electronic communication tools for protection needs, rescue and assistance in accordance with a unique system of communication and information;
- planning and implementation of preventive measures;
- processing of risk assessment and emergency response plans;
- organization, development and management of personal and reciprocal protection;
- organization, management and implementation of protection, rescue and assistance at the local level;
- defining, organizing and equipping units and SPRA utilities and other organizations in this field;
- the supply of necessary resources for emergency accommodation in cases of natural and other disasters;
- developing and carrying out training programs of local importance;
- coordinating emergency response plans and other protection operations for rescue and assistance with neighboring municipalities;
- supplying with basic conditions of life and restoration, recovery from natural and other disasters;
- identification of organizations of special significance for protection, rescue and assistance at the local level;
- international cooperation in the protection, rescue and assistance under this law.

When in natural and other disasters the protection, rescue and aid are requested, the local levels will initially deploy firefighting units and use their own civil protection resources (which are usually quite scarce). When the degree of risk and disaster exceeds the capacity of local emergency services and current resources at local level or when they can't be obtained by the local neighbors, the central authority should provide them from other regions. If available forces and resources are insufficient to cope with necessary rescue and aid operation, then a municipality through EMA may request the deployment of other civil protection resources, including the international ones.

the Mayor, as the executive chief of the municipality, is responsible for public safety and wellbeing of the citizens in that municipality. The Mayor:

- is responsible for coordinating local resources to address the full spectrum of actions of prevention, preparedness, response and recovery from incidents in the context of all risks, including natural disasters, technological accidents and other contingency;
- on certain emergency circumstances, has political power to make, amend and repeal of the orders and regulations;
- assures leadership and plays a key role in communication with the public and helping people, businesses and organizations to deal with the consequences of any emergency declared within the jurisdiction of the municipality;
- encourages participation in mutual aid and exercises its authority to enter into agreements for mutual aid with other municipalities to facilitate the exchange of resources;
- requests central support when concluded that local capacities are insufficient, surpassed or Exhausted

## 1.2.2 Assessment of risk management aspects

Due to the specific situation of Northern Kosovo\*, only municipal authority level was involved into response and relief activities. In all municipalities establishment of municipal **Crisis Commission** for emergencies is envisaged; they actually convened during April floods. According to representatives of the municipalities, the Crisis Commission is chaired by the Mayor; operational staff is chaired by Director of Civil Protection Department. Unfortunately, municipalities could not provide written procedures of the Crisis Commission work as well as coordination plans. Representatives of the municipalities orally confirmed that there were coordination plans for emergencies in place. It is not obvious, whether and how the municipal Crisis Commissions in Northern Kosovo municipalities fulfil

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the duties of the Unified Command. To some extent, they certainly do, but in certain cases they may simply lack necessary competence and level of authority. For example, it was mentioned that a Mayor of a municipality in case of lack of resources may directly call assistance from KFOR. According to the interviewed KFOR official, it contradicts the correct procedures for KFOR intervention as their assistance in emergency situations might be required by governmental structures only.

**Fire Service** – there are three fire stations in Northern Kosovo: in Mitrovice/Mitrovica, Zubin Potok and Leposaviq/Leposavić. The main purposes of their deployments are forest fires, but they respond to other incidents, such as floods, traffic accidents, accidents with animals. Their equipment dates back to 1970-80-es, last 5-6 years they haven't seen any other financial support than from the municipality.

According to the EU policy and "Administrative Instruction on the Methodology of the Compiling Risk Assessment and Plans for Protection and Rescue" municipalities have to conduct risk assessments and renew them on yearly basis. However, this is not a compulsory procedure and there is no mechanism to check and evaluate these risk assessments at central level. In the reviewed municipalities neither risk assessments nor even hazard assessments have been ever compiled..

Lack of capacity in terms of risk identification also impacts early warning. In Northern Kosovo\*, there are no early warning mechanisms to inform authorities and the public about developing trends of risks – that increases population exposure to various natural hazards. As mentioned above, early warning and alerting are closely linked to hydrometeorological monitoring. Since 1999, the Serbian system RHMZ is not in operation and there is only one measuring point on the river Ibar- Prelez.

After signing of Brussels Agreement from 19 April 2013 first contacts between municipal authorities and commanders of Fire Units from Northern Kosovo with EMA officials were made.

Emergency Response Number – in the four municipalities on the North of Kosovo\* people use emergency number 193 to call a Fire Station. Firefighters are the first responders in any emergency situation. Information to police, ambulance, local authorities goes through separate channels (numbers) and seems to be rather chaotic. Disasters do not recognize state or ethnical borders, therefore access to emergency assistance should be equally granted to the whole population.

### 1.3 Analysis of responsible institutes

It is evident that existing civil protection resources (firefighting units in the municipalities) are far not enough to perform large-scale operations in case of emergencies. They are not so big in numbers and, at present, can rely in the best case only to resources from neighboring Northern Kosovo municipalities. Firefighting units' equipment is scarce, obsolete and non-sufficient. Firefighters frequently are in need of spare parts and technical facilities. In Zubin Potok Fire Unit there is only one outdated chemical protection suit, however risk of chemical accidents is very high because of Trans-European Motorway (E80) passing through the municipality area. The Fire Unit has neither absorbents nor other equipment to respond to potential chemical accident. The fire fighters in Northern Kosovo regularly train themselves on job, but obviously it is not enough to be updated and well-prepared.

It was mentioned that municipalities have standby agreements with owners of heavy machinery that can be used in response to emergencies. It could be observed on the photos and videos made during flood response operations that responders were using cranes, heavy trucks, rubber boats and other equipment. Most probably it was timely and sufficient, as no one specifically mentioned the contrary. Having standing contracts with private companies is a good solution for preparedness, not only for floods, but also in case of forest fires, landslides, earthquakes and other emergencies. However, a degree of company's reliability has always to be taken into consideration and possible back-up solutions prepared. Use of trained voluntary resources for response operations is almost non-existent. There are no voluntary firefighting units in the municipalities. In many cases, especially in remote villages organized and trained teams of volunteers can be at the frontline of first response. Here Red Cross can make its

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contribution, training volunteers to respond to disasters. That means not only first aid, but also evacuation of endangered people, urgent property protection measures, supportive activities during forest fire fighting operations.

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