

Consequences of the Floods from May, 2014 in Bosnia and Herzegovina caused by Transboundary River Sava

SHORT REPORT

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- **Map showing middle stream of the Sava river and general areas of flooding**
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Area of the Report





Floodplain Map



- Flooded Area in the Transboundary part of stream of Sava River

Bosnia and Herzegovina: 26.630ha=266,3km²

- Federation B&H 17.950ha
- Republic of Srpska B&H 7.205ha
- Brčko District B&H 1.475ha

Croatia: 5.345ha=53,45km²

Serbia: 2.240ha=22,4km²

34.215ha=342,15km²

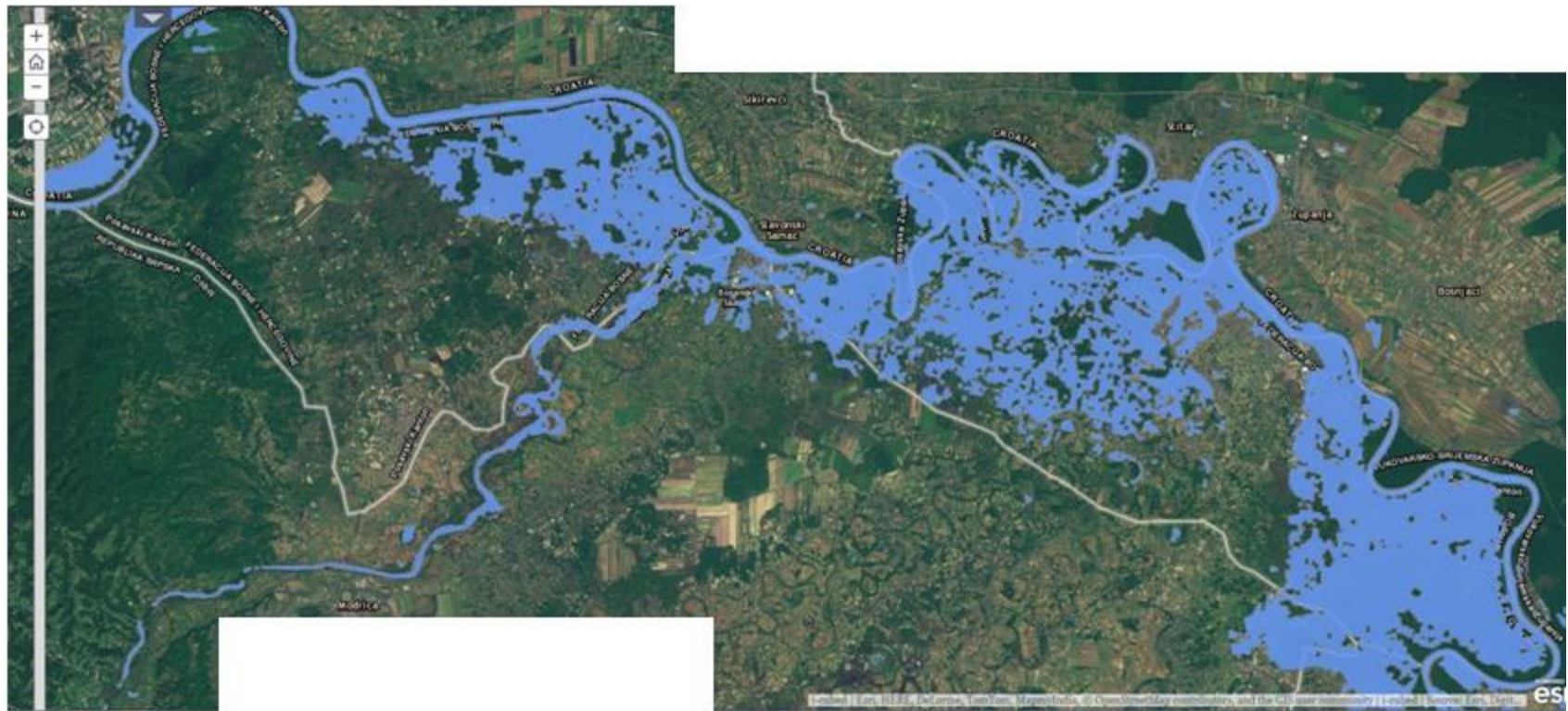
- Total Flooded Area in the Region of western balkan

2.290.000ha=22.900km²



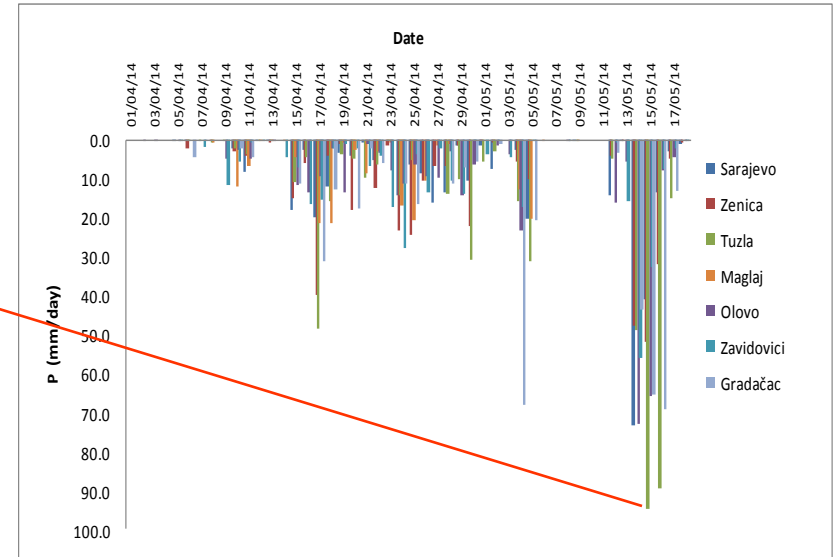
Floodplain Map of the Sava River in Bosnia and Herzegovina

- Flooded Area: 17.950ha=179,50km²





Precipitation



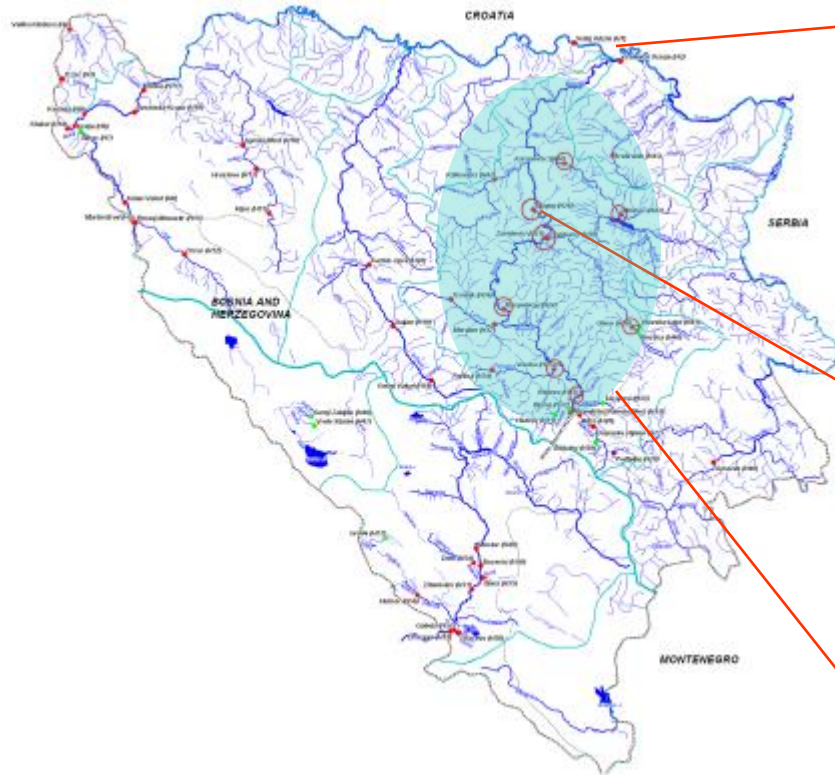
During May of 2014, record precipitation amounts, coupled with already saturated soils (march-april) resulted in flooding along many rivers in the Transboundary Sava River Basin.

Peak-of-record rainfall were recorded at more than 15 raingages. The annual exceedance probability of the peak rainfall at gages was between 0.1 and 1 percent .
(0.1 percent; recurrence interval greater than 1000 years)
(1 percent; recurrence interval greater than 100 years)

Rainfall station	MAXIMAL PRECIPITATION 01.04.2014.-22.05.2014.					STATISTICAL DATA PRECIPITATION 1961-1990	
	1-day	2-day	3-day	5-day	30-day	P _{2%}	P _{1%}
M15-Sarajevo	73,3	114,3	127,7	141,9	290,1	89.9	98.8
M18-Zenica	51,8	99,7	131,6	137,3	325,6	76.8	84.4
M17-Olovo	72,9	138,7	146,7	168,4	300,4		
M19-Zavidovići	56,0	88,6	104,3	113,9	268,5		
M20-Tuzla	94,6	184,0	232,8	247,8	457,5	82.0	89.9
M23-Gradačac	69,0	134,5	178,1	191,4	394,1	96.1	106.5



Water Levels

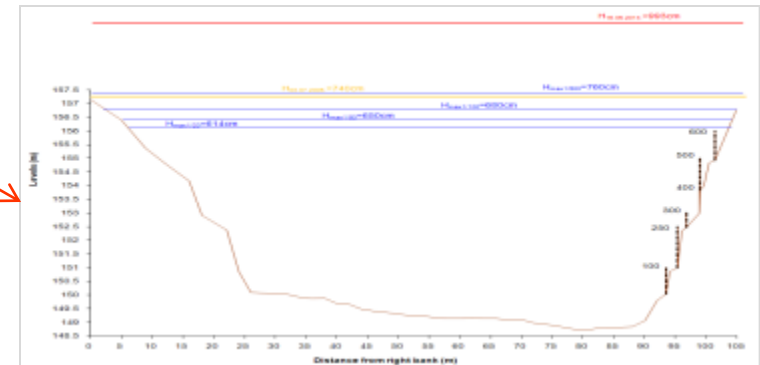


Peak-of-record streamflows were recorded at more than 30 streamgages. The annual exceedance probability of the peak streamflows at some streamgages was less than 0.2 percent and between 0.2 and 1 percent . (0.2 percent; recurrence interval greater than 500 years) (1 percent; recurrence interval greater than 100 years)

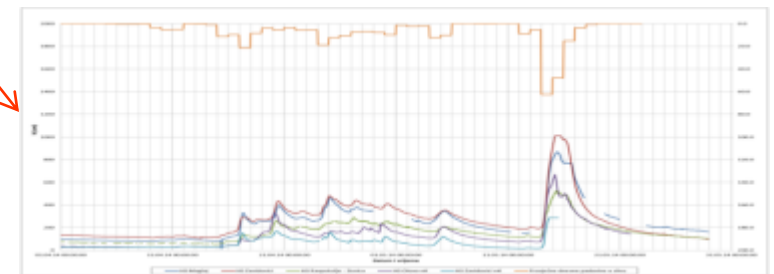
Gauging Station Slavonski Šamac, Sava River:

Flow,
17.05.2014. **H=6007 m³/s**
19.01.1970. H=4161 m³/s (earlier maksimum)

Gauging Station Maglaj, Bosna River:



Gauging Stations Networkj, Bosna River Basin:





Consequences





Consequences





Conclusion – Lessons learned and good practices

- **Natural disasters caused by bad weather, and probably as a result of climate change, have begun to reflect in the Western Balkan region. In this should be taken into account and the occurrence of major floods, caused by excessive rainfall in the previous period of 10 years on several occasions in 2004; 2010; 2014**
- **The concept of protection from high waters and floods of the Sava river should be improved**
- **In Bosnia and Herzegovina specifically, in the short term, is required overbuild (superstructure) of 1.2m on the existing dikes along the Sava river, above the projected level for the 1% annual exceedance probability, which requires about 15 million euros**
- **For long term period for the entire region, for the protection of the floods of the transboundary Sava River, it is necessary to devise an additional concept, since it has been shown that neither the construction of the dikes does not solve the problem without enabling integrated management and planning spill over to the specified fields**
- **These joint activities can not be carried out by individual countries, therefore we already initiated the active involvement of international organization (Joint Body) for the management of the Sava River – The International Sava River Basin Commission (Sava Commission)**

Thank You for Attention!