



The role of impact information in emergency management

An impact-based forecasting study in Kraljevo, Serbia

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Impact-based forecasting



Presentation of
information?

What type of
information?



Timing of
information?

Real-time vs
scenario-based
information?

Deltares

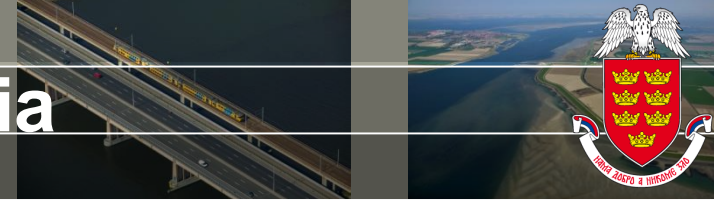
Information needs in emergency management



Aim of the study:

Learn more about the information needs of end-users and decision makers with respect to impact-based forecasting and emergency management

Municipality of Kraljevo, Serbia



Area: 1530 km²

Population: 122782 citizens in 92 settlements

Environment:

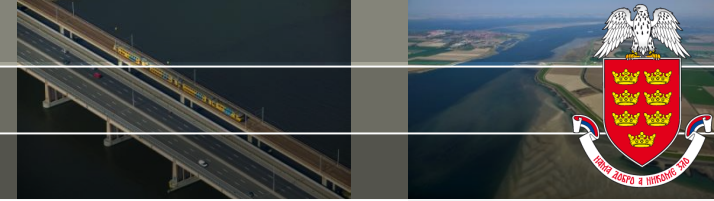
- 3 primary rivers (national): Gruža, Ibar and West Morava
- Around 150 secondary rivers (local)
- 70% mountain terrain

Cultural heritage and recreation:

- Manostery Žiča and UNESCO protected Studenica
- Mataruška spa, Bogutovačka spa, Sirčanska spa, Vitanovačka spa



A study in Kraljevo, Serbia



HAIL



LANDSLIDES



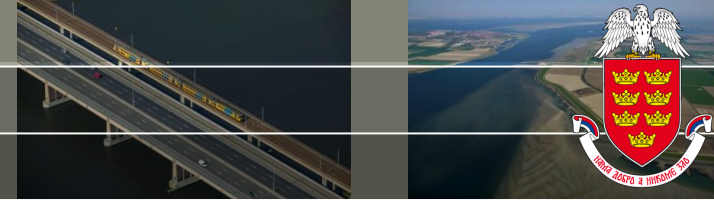
STORM WINDS



FLOODS

Deltares

A study in Kraljevo, Serbia



FIRES



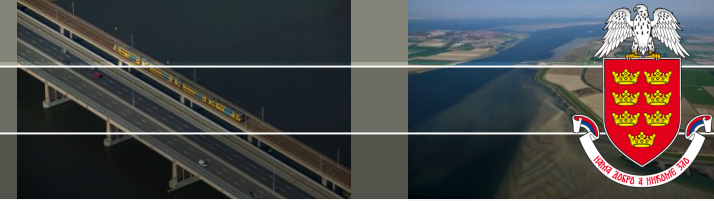
SNOWDRIFTS



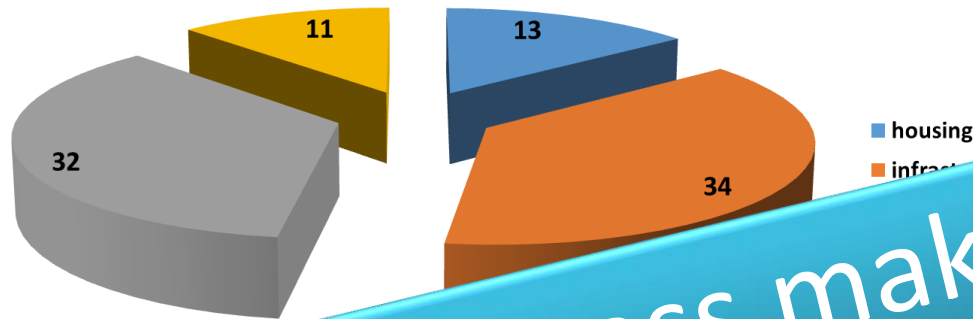
EARTHQUAKES

Deltares

A study in Kraljevo, Serbia

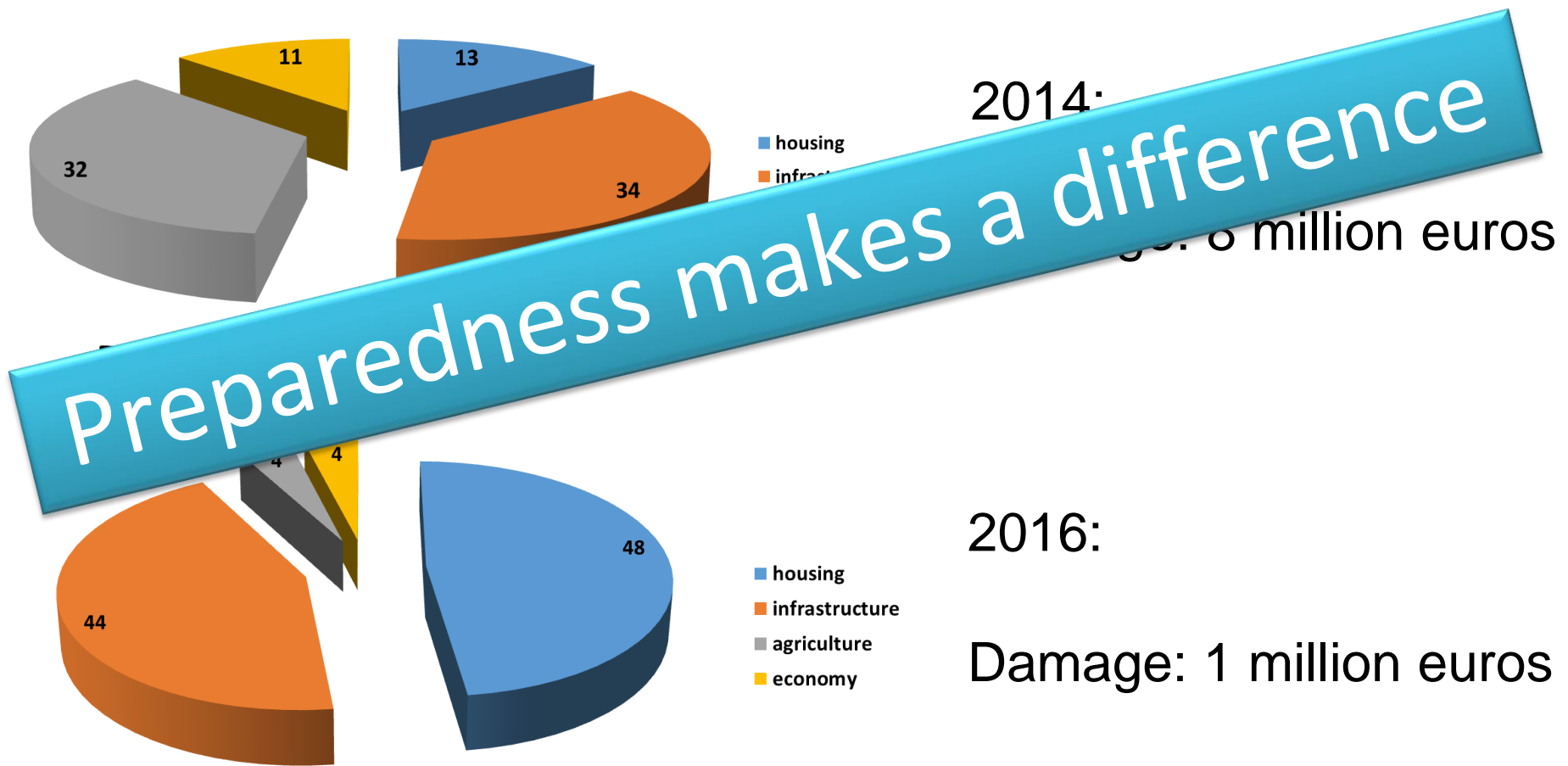


Damage after 2014 flood (%)



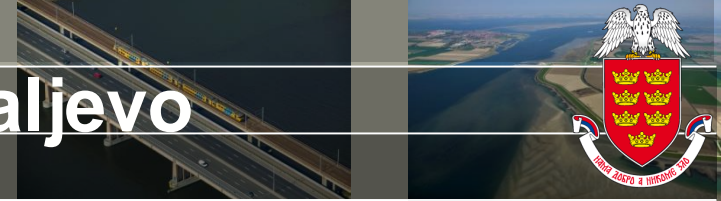
2014:

Damage: 8 million euros



2016:

Damage: 1 million euros

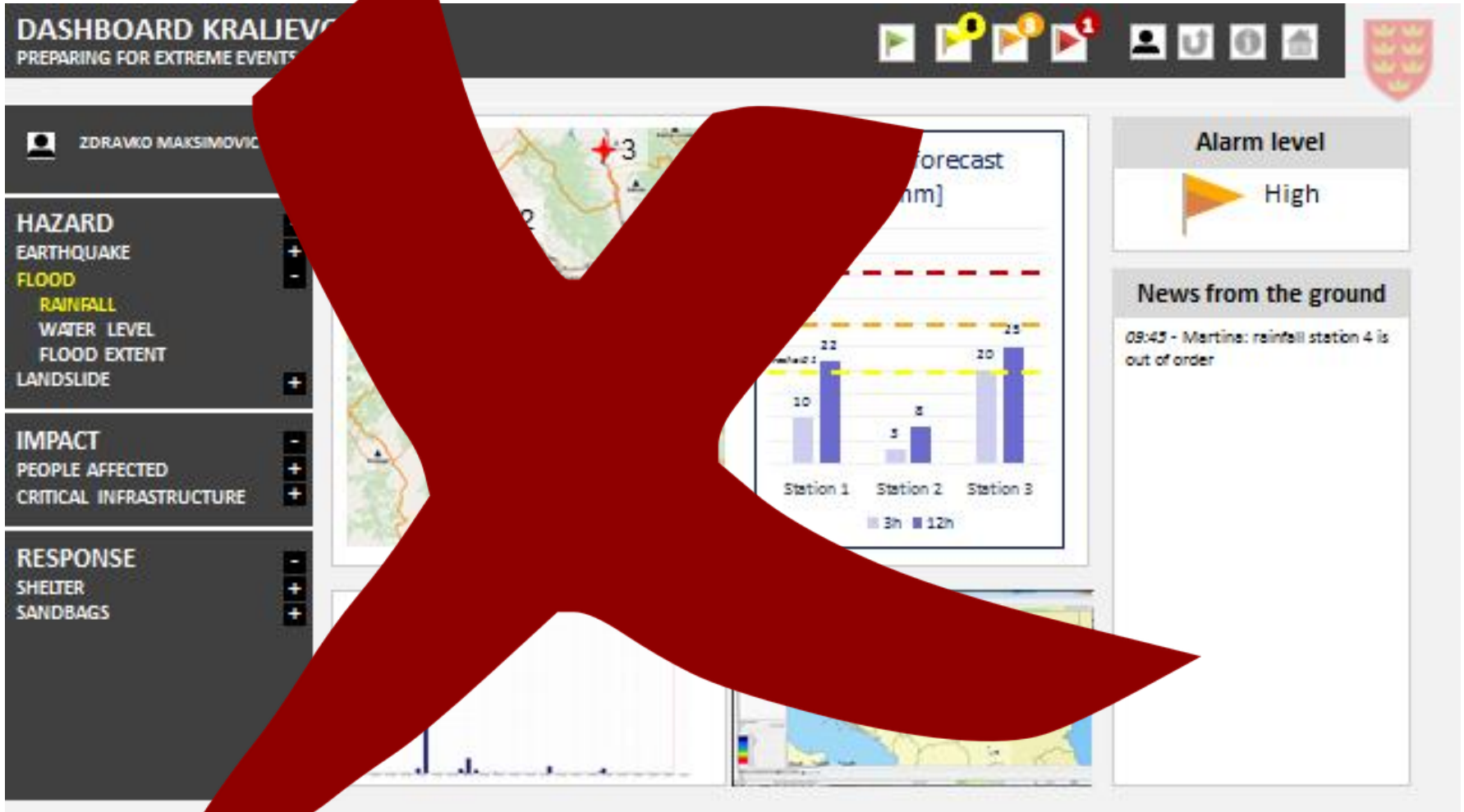
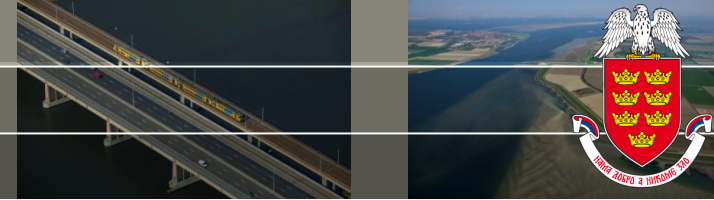


Integrated perspective

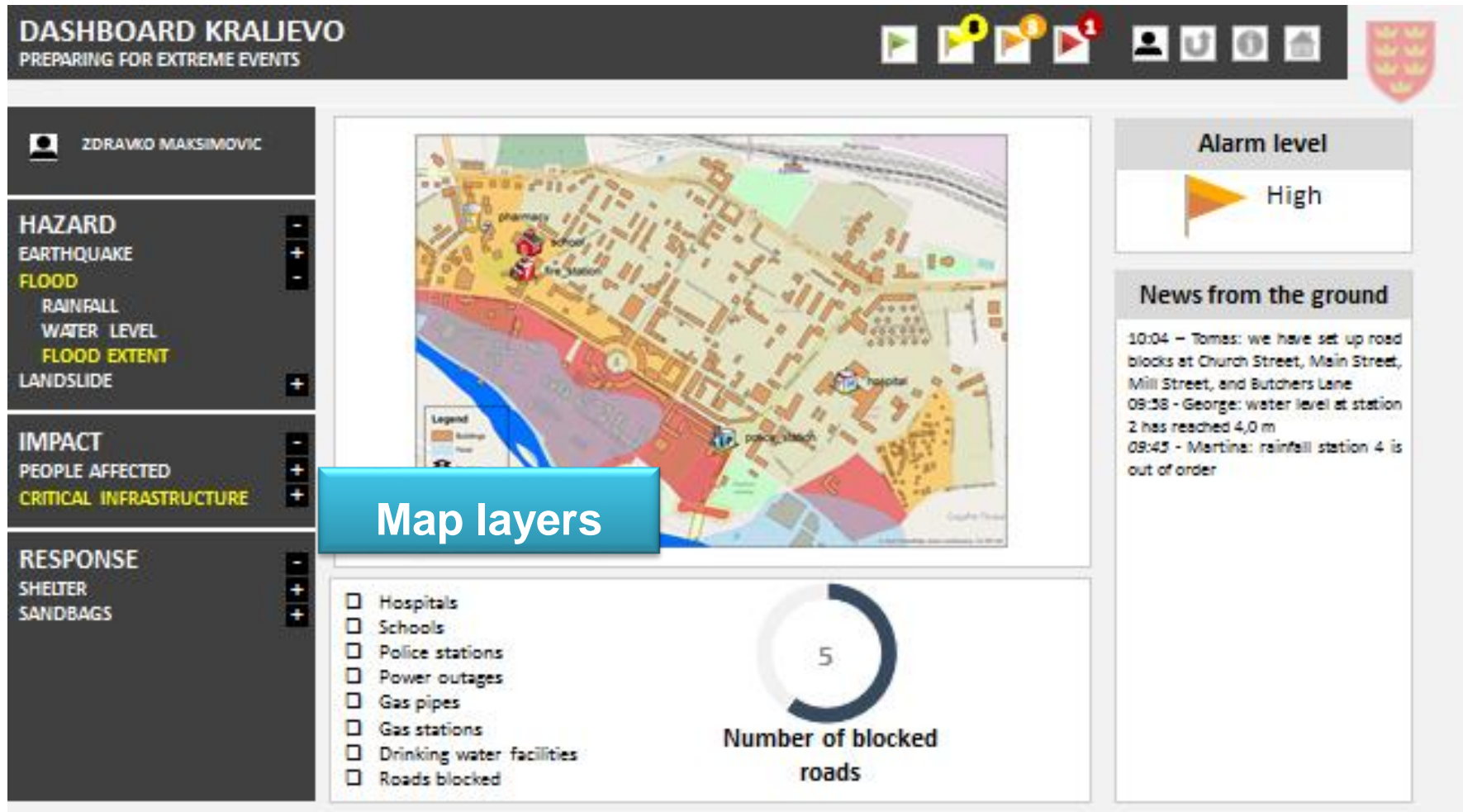
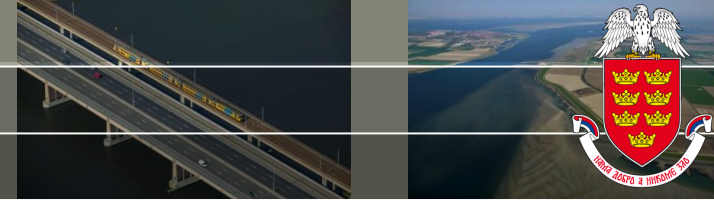
Trust and relationships

Relevant information

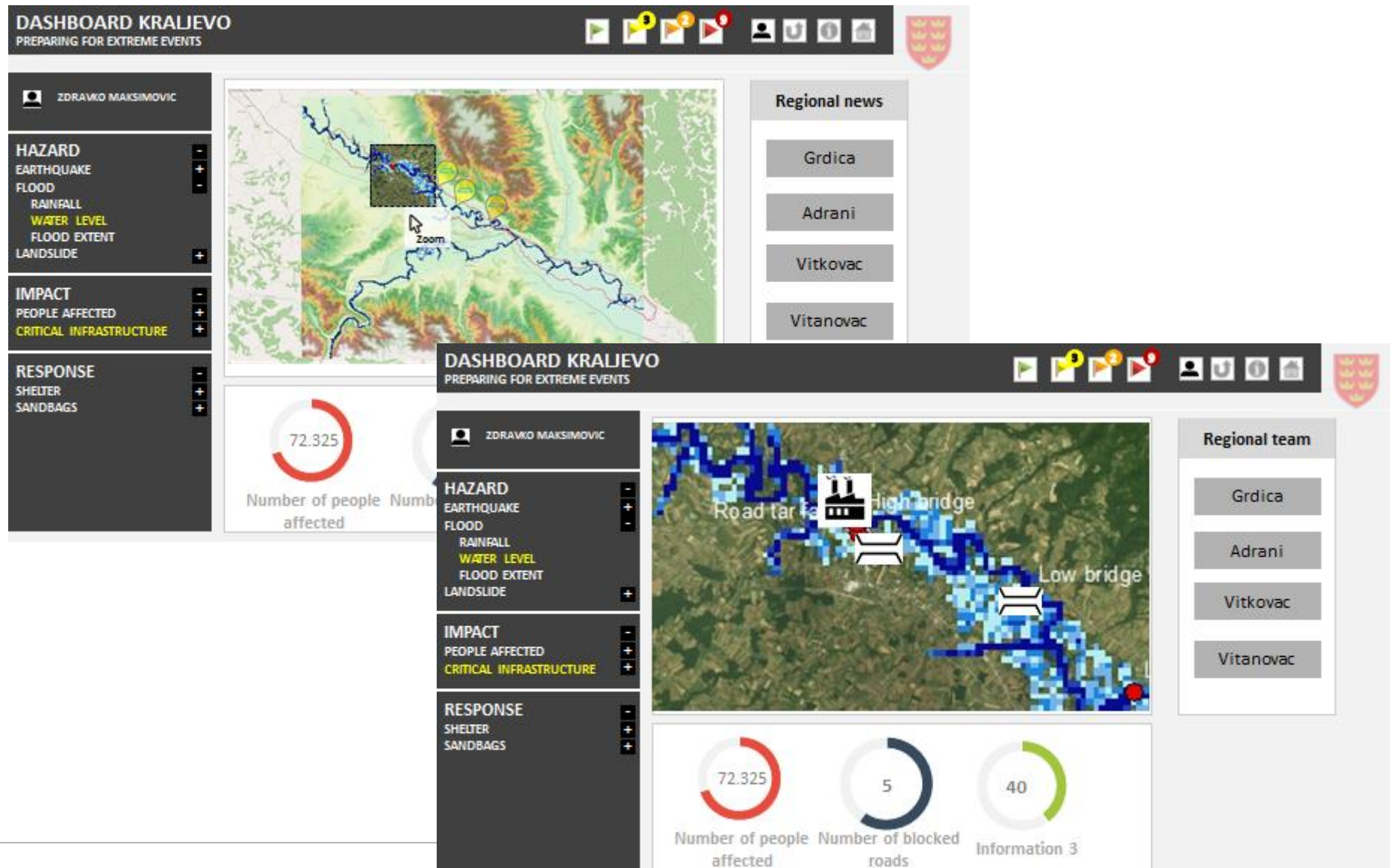
Information needs



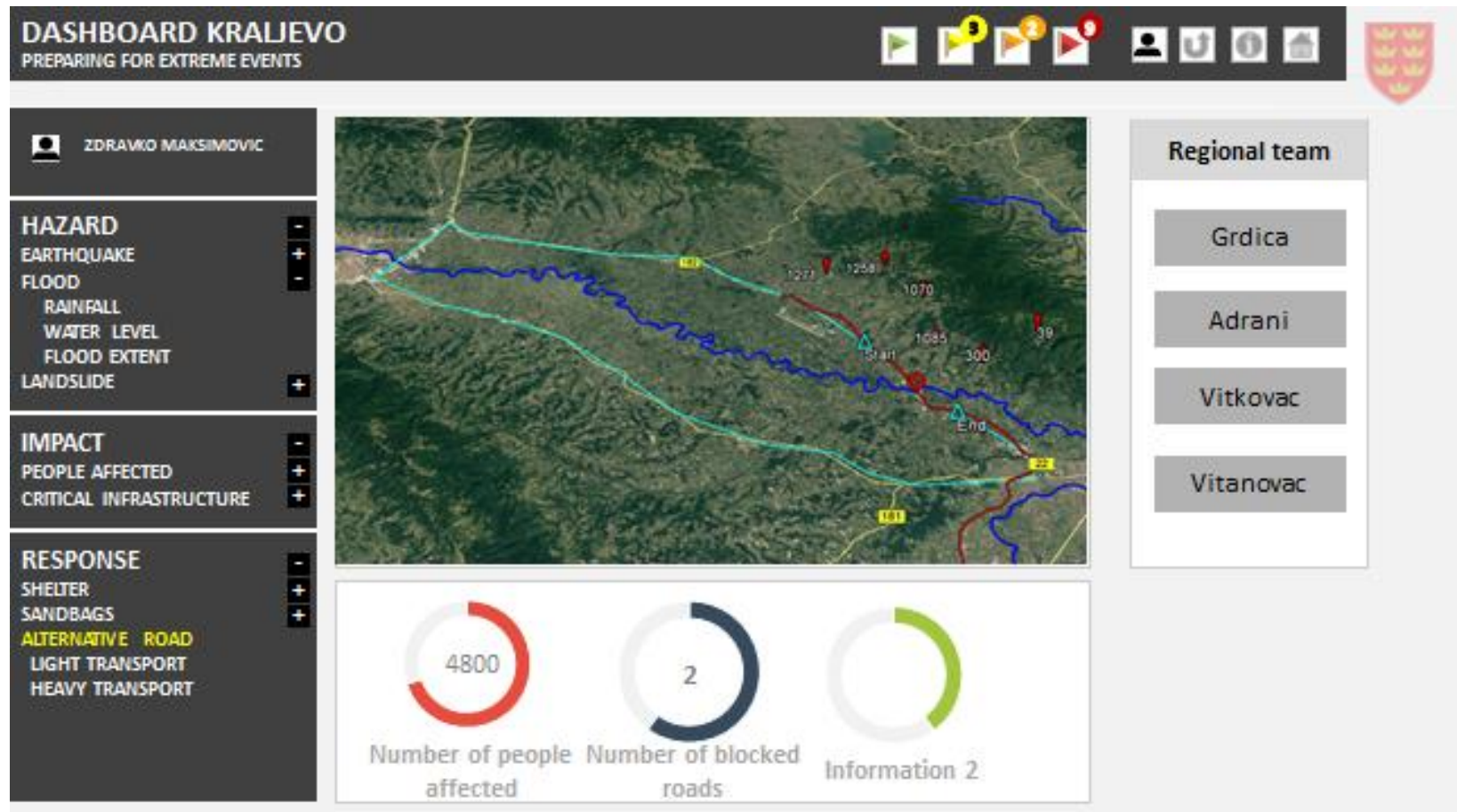
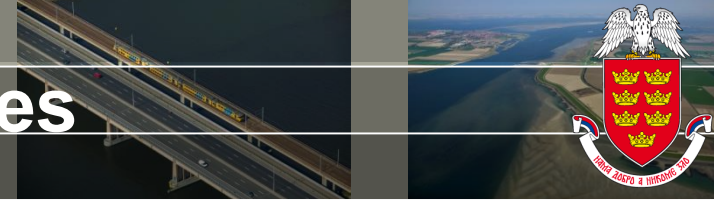
Information needs - logistical



Information needs – problem spots



Information needs - alternatives



Information needs – interactive input



DASHBOARD KRALJEVO PREPARING FOR EXTREME EVENTS



ZDRAVKO MAKSIMOVIC

HAZARD

EARTHQUAKE

FLOOD

RAINFALL

WATER LEVEL

FLOOD EXTENT

LANDSLIDE

IMPACT

PEOPLE AFFECTED

CRITICAL INFRASTRUCTURE

RESPONSE

SHELTER

SANDBAGS

COMMISSIONERS



Alarm level



High

News from the ground

ZAMCANJE

PROGORELICA

MAGARUSKA

...

click

DASHBOARD KRALJEVO PREPARING FOR EXTREME EVENTS

ZDRAVKO MAKSIMOVIC

HAZARD

EARTHQUAKE

FLOOD

RAINFALL

WATER LEVEL

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COMMISSIONERS

ZAMCANJE

PROGORELICA

...



08:13 started raining
08:41 Checked Ibar bridge –
water level 20 cm below, and
bridge sound

Zamcanje – Anna Maric

08:25 ... typing

Maturuska – Stefan Jovanovic

News from the ground

ZAMCANJE

Anna Maric

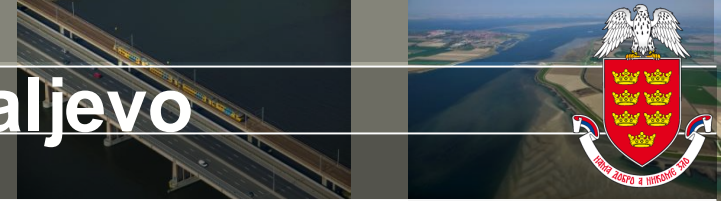
Tomas Petrovic

PROGORELICA

Jelena Milovic

MATURUSKA

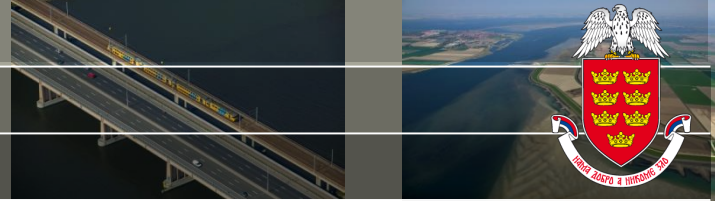
Stefan Jovanovic



Integrated perspective

Trust and relationships

Relevant information



Feedback?

Anecdotes?

Reactions?

Questions?