

## 5th Drin Stakeholders Conference

# Floods from the perspective of the Township Golubovci (Montenegro)

21 – 22 November 2017  
Podgorica

## Floods in the area of Golubovci Township

- | The period of flooding            | Water level on of Skadar Lake,<br>measured in HS Plavnica |
|-----------------------------------|---|
| • I- December 2009 – January 2010 | 9.51 mm (measured on 12th January 2010)                   |
| • II- December 2010               | 10.44 mm (measured on 04th December 2010)                 |
| • III-March – April 2013          | 9.06 mm (measured on 5th April 2013)                      |
- Strong cyklonic activity, heavy rain (over 100 l/m<sup>2</sup> ) followed by strong south wind and high temperatures;
  - Groundwater level increase and leakage of lake water caused the floodings in settlements Gostilj, Kurilo, Ponari, Bistrice, Berislavci, Bijelo Polje, Šušunja;
  - The second flood wave was of the highest proportion, with the highest water level ever registered and with expansion of the flooded area to the central part of the Township (settlements Šušunja, Goričani i Mojanovići);

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## The overview of the settlements with endangered population during the second flood wave (December 2010)

Settlements	Number of endangered households	Number of household members
Bijelo Polje	237	831
Bistrice	97	352
Berislavci	155	519
Gostilj	67	184
Goričani	9	27
Kurilo	38	129
Ponari	88	324
Šušunja	5	25
Vranjina	82	328
<b>Total</b>	<b>778</b>	<b>2.719</b>

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## Flood response system in the area of Township Golubovci

- Municipal Emergency Management Team, coordinated by the Mayor of Township Golubovci, was formed from representatives of Emergency Situation Department, the Armed Forces of Montenegro, Police Department, Capital City of Podgorica, Electro distribution, and the Health care center.
- The working obligation was introduced for the officials of Township Golubovci, as well as for the officials working in authorities and public enterprises of Capital City.
- Significant logistics on the field was provided by residents and representatives of local communities whose support was essential in providing adequate assistance to the effected population.
- The evacuation and sheltering population and material goods was carried out by the Evacuation and Disposal Team (Rescue Team, Antiterrorist and Special Police Units, the officials of Township Golubovci, the Protection and Rescue Services of Capital City, the representatives of the Emergency Situations Sector and the Electro distribution Team).
- The entire population of settlement Kurilo was evacuated, while in other effected settlements the evacuation was partially conducted (more than a half of the population in settlements Gostilj, Bistrice i Berislavci were evacuated). Collective accommodation was provided within the airport barracks (where 4 families were sheltered), while a number of residents found accommodation at their cousins.
- A shelter for evacuated livestock was put into operation in settlement Berislavci, as well as a regular veterinary care;
- A continuous visit of the flooded area was carried out by the units of Montenegrin Army, the Special Units of Police Department, the Rescue Services of the Capital City and Golubovci Township officials.
- A 24 hour visit of the flooded area was performed;
- The classes in "Niko Maras" Primary school were postponed, due to impossibility to hold the classes;

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## Flood respons system in the area of Township Golubovci

A daily distribution of food, water, hygiene products, raincoats and boots, firewood, fuel and animal feed was enabled, therefore, in the given period it was distributed in total:

- **95,000 l** of bottled drinking water,
- **330,000 l** of water from cisterns,
- **600 m<sup>3</sup>** of firewood,
- **1,155** food and hygiene packages,
- **975** pairs of boots,
- **7,565 l** of fuel,
- **6,985** bales of hay, and
- **71 t** of animal feed.

A regular electro energetic situation monitoring;

After the withdrawal of water, the area was cleaned of dead animal bodies, the housing and auxiliary facilities were disinfected , micro-biological safety of water from the industrial wells was examined, as well as the assessment of the total damage.

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## People and mechanisation engaged

Name of the service	Number of operatives	Technique
Montenegrin Army	412	2 helicopters, ABHO tank (cistern), 110 motor vehicles (terrain trucks), 2 desant boats
Emergency Situation Department	6	2 pincgauers, 3 motor vehicles
Police Department	349	88 terrain vehicles, 1 truck , 3 tin boats, 3dinghies
Protection and Rescue Services of Capital City	62	2 tanks,1van, 1PMV?
Township Golubovci and Capital City officials	43	2 official vehicles (Golubovci Township)

**Total. 870**

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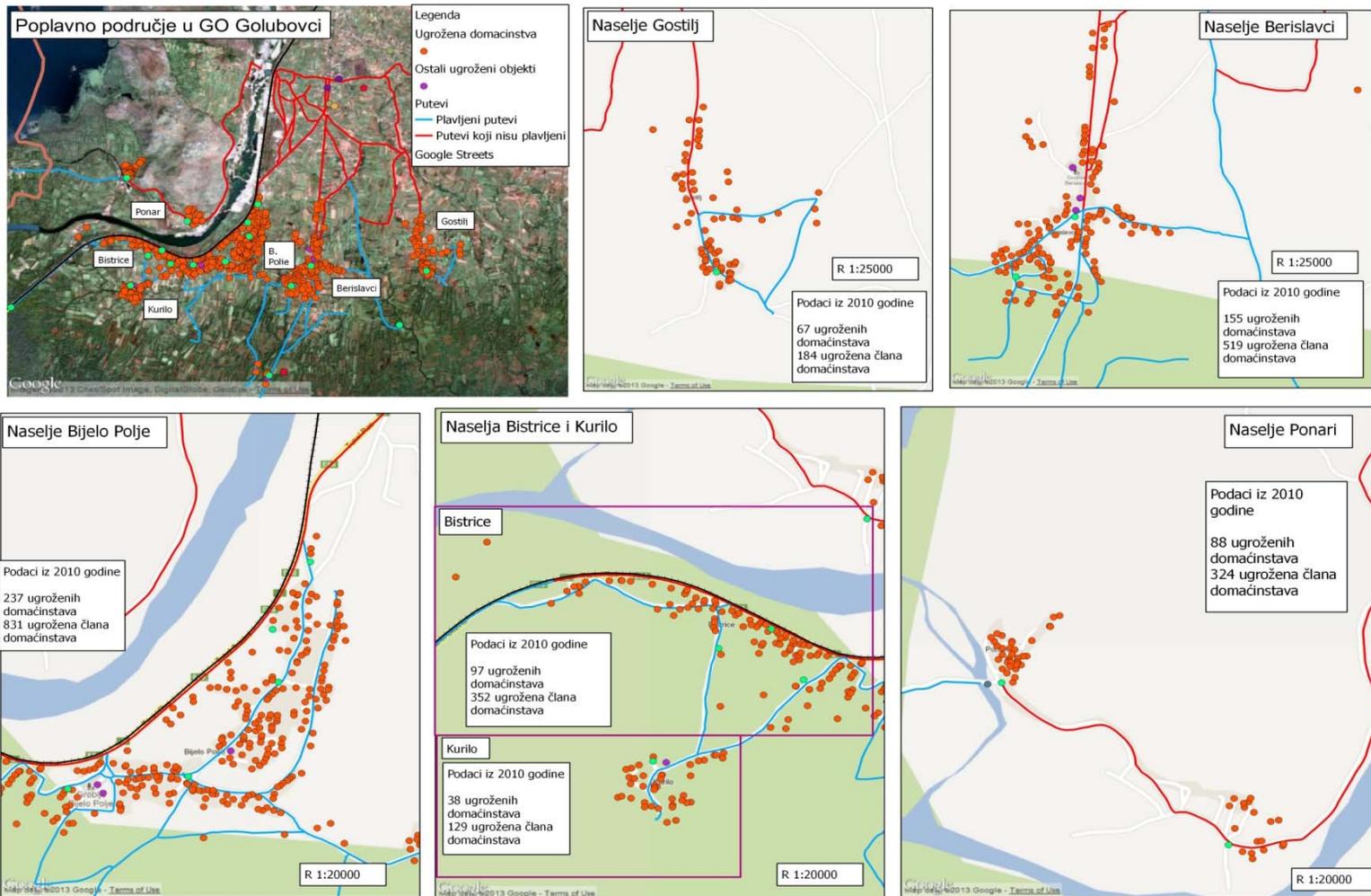


## Overview of endangered facilities and public infrastructure

- 700 housing, 1000 auxiliary , 31 economic facilities
- Primary school "Niko Maroš" and cultural centres
- Main road Podgorica - Bar (section through settlement Bistrice)
- All local roads through flooded settlements ;
- Religious buildings and local cemeteries in the settlements Gostilj and Kurilo;
- Electricity supply - low voltage network
- The bridge on the river Morača (the bridge Vukovci) along the local road;
- Bridge on the Cijevna river, along the main road;
- Agricultural production (individual livestock, chicken and pig breeding, field crops, ...)

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# Map of endangered facilities and communal infrastructure



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## An overview of estimated household damage during three flood cycles

Flood cycle	Estimated damage (€)
I	535.880,00
II	1.952.433,00
III	206.194,00

For damage repair and mitigation of flood consequences, the residents of Township Golubovci, in 2010 and 2011, were paid more than € 1.4 million in cash, while through different receivings in goods, this amount reached a figure of nearly € 2 million.

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## After flood activities

- The Township Golubovci Assembly sent an initiative to the Montenegrin Government for taking flood prevention measures, with a proposal to develop:
  - Strategy for Skadar Lake and the Bojana and Drin rivers watershed regulation in cooperation with neighboring Albania with the participation of the International community;
  - Project for regulation of the water regime of Skadar Lake and the Bojana River;
  - Action plan for project implementation.
- As a part of the activities carried out by the Emergency Situation Department in cooperation with the UNDP office and local governments, flood risk assessment for the Township Golubovci was made and it represents an integral part of the Protection and Rescue Plan of the Capital City;
- The maps of Township Golubovci areas affected by previous floods were included into the Spatial Plan of the Capital of Podgorica for the period until 2025, also, conditions for housing facilities construction and infrastructure were defined, as well as the construction ban below the 10.44 mnm.

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## **Local plan for protection and rescue for the Capital city territory**

- The plan was adopted in 2013 by the Capital City local Parliament.
- The plan was elaborated by a working group consisted from the representatives of the Emergency Situations Department of Montenegrin Ministry of Internal Affairs, The Protection and Rescue Service of the Capital City, Townships Golubovci and Tuzi and "Water supply and sewage system" Ltd.
- An integral part of the plan is the flood risk assessment for the Township area, classified as a high risk zone.
- The plan contains protection and rescue measures divided into three phases (preventive, operative and recovery) within the system of flood response, bearers of the activities, emergency management teams, overview of human and material resources of operational units, as well as overview of human and material resources of local government authorities, companies and entrepreneurs and other legal entities, instructions for citizens to act in case of flood risk.

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Preventive measures	Operation measures	Eliminating consequences
Controlling, cleaning and maintenance of drainage channels in the area of Township Golubovci.	Organizing, managing and coordinating flood protection and rescue actions.	Flood damage assessment.
Controlling the work of the concessionaire and prevention of excessive exploitation of the gravel from the river Morača.	Issuing warnings and sending information to the residents.	Arranging a zone for sheltering the endangered population (construction of prefabricated settlements - installation of containers, tents, etc.);
Defining adequate communication in the early warning system, in order to announce and issue warnings.	Introducing on-call duty within the competent authorities and on the threatened terrain.	Collecting and distributing assistance to the affected population
Implementation of propaganda measures, education of the population living in the endangered area and continuous raising of awareness.	Engaging available lokal human and material resources.	Implementation of health, veterinary and hygienic - epidemiological measures of protection and implementation of other activities and measures for mitigation or elimination of flood consequences.
Strengthening flood prevention measures through the spatial planning and urban planning system and through the adjustment of Municipal legislative.	Engaging construction operations on road rehabilitation and protection of damaged infrastructure.	Creating conditions for normalizing life and work of people in the affected area.
Education of local government officials in the field of flood management.	Creating conditions for rapid intervention of Protection and Rescue Services.	Conducting disinfection, disinsection and pest control and undertaking other activities and measures to prevent flood consequences.
Raising embankments in places where gravel is exploited in order to mitigate the consequences of the Morača River meandering.	Providing medical assistance to injured persons.	Creating conditions for normalizing life and work of people in the affected area.

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## **Overview of teams and groups that can be activated in case of a need while implementing certain measures and activities during the floods**

### **1. HEADQUARTERS FOR PROTECTION FROM WATERS HARMFUL FOR MONTENEGRIN WATERS OF THE IMPORTANCE**

- Deputy Director of the Water Directorate
- Deputy Minister of Internal Affairs
- Director of Hydrometeorology and Seismology Institute
- Director of the Environmental Protection Agency

### **2. EVACUATION, PROTECTION AND SUPPLY GROUP**

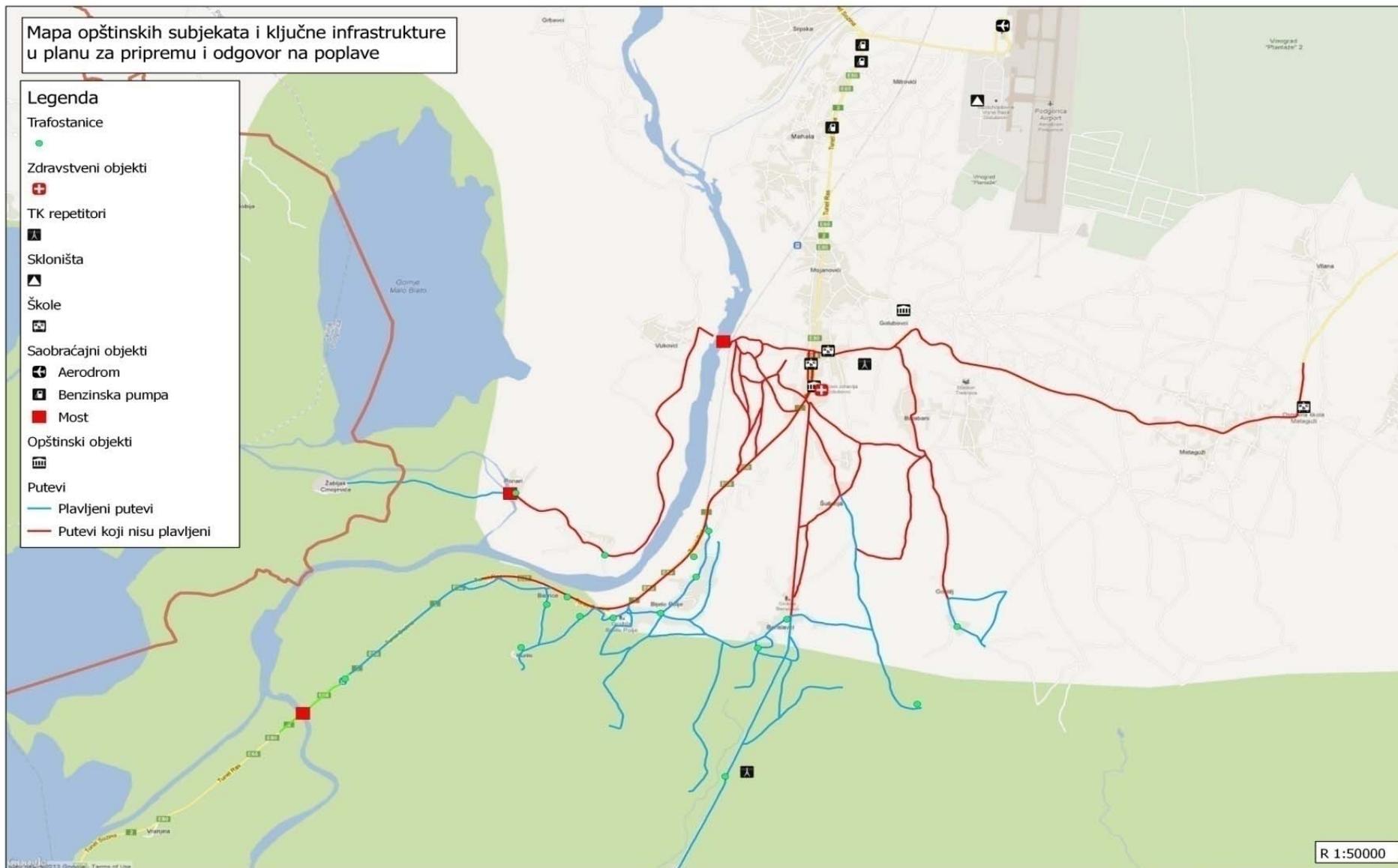
- Commander of the Protection and Rescue Service
- The Red Cross Secretary
- Police representative
- Representatives of humanitarian organizations Caritas and Help
- The Ministry of Internal Affairs- Emergency Situations Department
- Auto transport company
- Representatives of Township Golubovci
- Director of Sports Centre

### **3. HEALTH AND EPIDEMIOLOGICAL PROTECTION GROUP**

- Health Center Director
- Clinical Hospital Center Director
- Director of Emergency Medical Aid
- The Red Cross Secretary
- Public Health Institute

### **4. COMMISSION FOR THE ASSESSMENT OF NATURAL DESASTER DAMAGES**

# Map of municipal facilities and key infrastructure within the Protection and Rescue Plan for the Golubovci Township



# Conclusions

- An institutional framework has been created, communication has been established and all relevant and reputable stakeholder representatives included. Now it is time to concretize the activities!
- Our experience with the floods, which on several occasions and on different level, affected Montenegro and Albania, oblige us on a necessity of finding a common solution for water management in the Skadar Lake basins, and these solutions are urgently needed, so I would therefore appeal on the dynamics and materialization of the conclusions from all previous conferences;
- Characteristic natural features of Skadar Lake (crypto-depression) and the river Bojana (inclination of 0.5 to 2% towards the Adriatic Sea), give us an additional obligation to consider several possible approaches to solving this problem.
- First of all, it is necessary to create preconditions for a quality interstate system of early announcements and warnings of meteorological conditions, in order to enable more time for all the stakeholders to react properly.
- And when it comes to the response, our experience has shown that besides the available resources, the key role in the field is played by the domicile population, and therefore came an another initiative undertaken by us, which in meantime gained a legislative framework, that is - formation and training of so-called civil protection.

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## Conclusion

- Given that every solution represents a serious financial challenge for the stakeholders, it is necessary to consider the approach of financing the project from the aspect of utilization of the resources that the basin of Skadar Lake offers.
  - Agricultural (fresh water exploitation, tens of thousands of hectares of the most fertile plow land, peat exploitation, livestock breeding, etc.)
  - Tourism (eco tourism, hunting and fishing tourism, valorization of traditional crafts and products, tourist and promotional events, etc.)
  - Economic (fishing, water source exploitation - regional water supply system, etc.)

Let us not forget that we have borrowed Skadar lakes and the area around it from our ancestors who knew how to live with the lake and from the lake and with the nature, and that we have the obligation to preserve it for our descendants so that they can enjoy it as well.

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