5th Drin Stakeholders Conference

FLOODS IN DRIN-BUNA, THEIR OCCURRENCE EFFECTS AND RISKS

Author of the presentation (Klodian ZAIMI / IGEWE)
• In Albania, the rivers constitute the highest flood risk, whose effects extended to 130 000 hectares of land.
• The floods are generally of pluvial origin and are occurring in the period of November – March, when the country receives about 80-85 % of annual precipitations.
• The largest floods have appeared in the low western area of the country but small rivers and the torrents cause Flash Flooding too.

As a consequence, the rivers in defined segments cause high economic damages for the inhabited rural or urban areas.
Floods from Albanian Rivers based on the year 1963

As the urban development of the floodplain increased, the damage caused by flooding also increased. The conception of the flood-protection measures has been derived from an analysis of floods in the area of these rivers since 1962-1963. After the flood of these years, protection structures were constructed in some rivers. These structures were constructed with an average return period of 1%.
In January and December 2010 the flood caused major damage and disruption over a wide area. The flooding of January 2010 in the district of Shkodra was at the time considered the biggest emergency event. Some 10,400 ha of land was inundated and about 2500 houses and 4800 people were evacuated.

- As a result of increasing rainfall, the Drin river flow rapidly raised and augmented the water level in three hydropower reservoirs.
- After being forced to release water, the discharge increased to 2450 cubic metres per second while the maximum capacity of Buna River is only 1600 cubic metres per second.
- The Albanian government declared the flood a "natural disaster" on January 5th 2010 when the flooding displaced thousands of people. The Shkoder District reached a critical situation as the water level on main roads reached one meter. Inside the village of Berdices the water level reached two meters. The overflow of water alienated the city from national road access and cut communication with the town.
- The Albanian government used the army and police forces to help remove residents using boats and military vehicles. The Emergency Commission at Shkodër on January 8th 2010 reported an increase in the number of evacuations to 3,572 persons with 98% being accommodated by relatives.
The Inflow and Outflow for Fierza Reservoir during December 2010

Vau Dejes Outflow and Power generation during December 2010

Annual Maximum Flows from Vau Dejes Reservoir

Drini and Buna Flows in the December 2010 Flood Event

(Source: Mott MacDonald)

(Source: KESL)
Discharge for Drini and Buna Rivers and its tributaries Kiri and Gjadri.
Flood on December 2010
Floods problems 2010
Flood of January 2010
Flood of December 06.12.2010
Flood of December 08.12.2010
Flood of December  12.12.2010
• The frequency of natural hazards, such as floods, drought and forest fires have been increasing during the last decades. On the other hand modern societies have become more vulnerable to impacts of natural hazards, which has increased the economic impacts of weather extremes.

• Through climate modelling it is predicted that the climate variability and the frequency and magnitude of hydrometeorological extremes and hazards will further increase due to climate change.

• The IGJEUM is responsible to manage the national meteorological and hydrological networks, to provide studies about climate and hydrology, water and air quality in Albania. Some measures necessary for flood protection are:

  1. Organizing flood warning service, through reactivation) of a network at IGJEUM, which will regularly inform the state authorities on rainfall and the condition of rivers in flood cases.

  2. Undertake a comprehensive study on data including the years 2000-2017.

  3. Review of existing regulation and discharge computerization through a simulation models.

  4. Determination of high-risk areas and flood damage caused by floods of different sizes.

  5. Organize periodic sensitization campaigns for flood damages and awareness for the population in collaboration with Directorate of civil protection and related ministry’s.
Done:

- The hydrological model has been adapted to the Drin-Buna catchments system.
- Flood-PROOFS,
- PANTA RHEI (GIZ),
- EFAS
- Flash Flood Guidance System (WMO)
Flood forecasting

Observed input variables

Forecasted input variables

NOW

Hydrological model

Discharge [m^3/s]

Simulated

Measured

Run on observations

Alert

Forecast

time

time

NOWW
Bulletins on HydroMeteorological Events

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Për rezije të tjera meteorologjik

Legend 1: Meteorological Risks
- **No Risk**: Low precipitation from 0 to 15 mm in 24 hours or forecast. No severe meteorological events are expected.
- **Low Risk**: Average precipitation from 15 to 50 mm in 24 hours is forecast (5-15mm/24h). Low probability of severe meteorological events is expected.
- **Moderate Risk**: Intensive precipitation from 45 to 90 mm in 24 hours is forecast (45-90mm/24h). Moderate probability of severe meteorological events is expected.
- **High Risk**: Very intense precipitation higher than 90mm in 24 hours is forecast (>90mm/24h). High probability of severe meteorological events is expected.

Legend 2: Hydrological Risks
- **Thundershowers**: High intensity rainfall 26 mm/3 hours which can create problems depending on the type of topography and surface.
- **Flash Floods**: Fast occurring floods in small catchments or streams or urban areas. The event will last less than 12 hours.
- **River Floods**: Slow occurring floods in big rivers such as Drini, Buna, Bilećka, Llak, and others. The event will last more than one day.

Buletini MBI
Qendra Komitetare për Parashkimi dhe Monitorimin e Rrezikave Natyrale
Ajo kanë qenë 23-03-2016, orë 12:00 deri me 24-03-2016, orë 23:59.
Për rezije e tjera meteorologjike ON-LINE, klikoni në: www.atmosfera.al

Buletini No. 64 / 2016, 23-03-2016

Përmbytje apo Rërëshqitje
Nuk pritet ndonjë rezik.
Floods In Drin and Buna Rivers, March 2013.
Thank you for your attention!