United Nations
Educational, Scientific and
Cultural Organization

UNESCO Chair on
Water-related Disaster Risk Reduction
University of Ljubljana, Ljubljana, Slovenia

Hystorical century floods

- 1965 Flood of the Danube River
- 1970 The Tisa river flood
- 1990 Savinja River floods

University of Ljubljana
Faculty of Civil and Geodetics Engineering
Chair for Hydraulics Engineering

UNESCO CHAIR: Water-Related Disaster risk reduction

ENVIRONMENTAL PROTECTION- (and risk management) - UNIVERSITY Doctoral STUDY PROGRAMME

The post-graduate education program is carried out by the following faculties of the University of Ljubljana:

- **Biotechnical Faculty**
- **Faculty of Economics**
- **Faculty of Social Sciences**
- **Faculty of Civil and Geodetic Engineering**
- **Faculty of Chemistry and Chemical Technology**
- **Faculty of Mathematics and Physics**
- **Faculty of Maritime Studies and Transport**
- **Faculty of Mechanical Engineering**
- **Faculty of Arts**
- **Faculty of Medicine**
- **Faculty of Natural Sciences and Engineering**
- **Faculty of Law**
- **Veterinary Faculty**

Chair for Hydraulics Engineering

- **1993 – up to day participate on EU flood reduction projects**
- **Experimental river basins and field measurement**
- **1999 Vodne ujme – book**
- **International activity IHP and Interprevent**
- **Several doctorates on hydrology and floods**

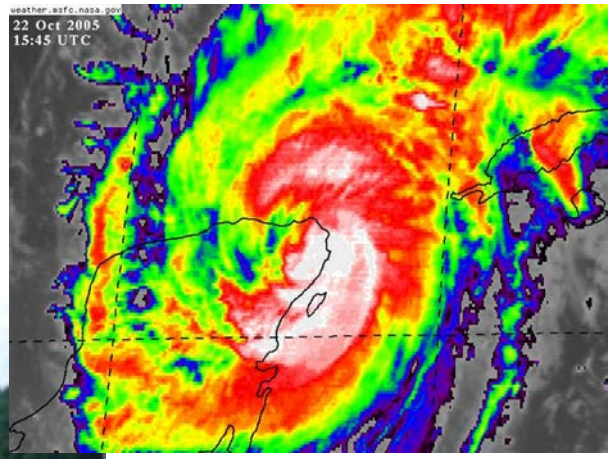
Task of the Chair

Damages caused by water-related disasters, such as floods or rainfall-induced landslides, continue to increase all over the world, while available water resources are becoming increasingly scarce, causing damages, such as those due to droughts. The research activities undertaken by the newly established UNESCO Chair on WADRR will be an intricate part of joint worldwide efforts to reduce disaster risks and to mitigate their unavoidable consequences.

Integrated Water-Related Disaster risk reduction

- The integrity incorporates:
- The Integrity of the River Basin
- The integrity of the water regime, including medium and low flows
- The integrity of the water regime and regime of sediment including morphology,
- The integrity of the water regime of ecohydrology, including the integrity of the water regime and the use of space,
- The integrity of all activities on water and surrounding area
- The integrity of the implemented of measures and observations before, during and after the action,
- The Integrity of vulnerability and society
- The Integrity of flood safety and spatial planning
- The Integrity in time, taking into account the long-term changes in the area that affect risk.
- Etc

Integrity of hazard

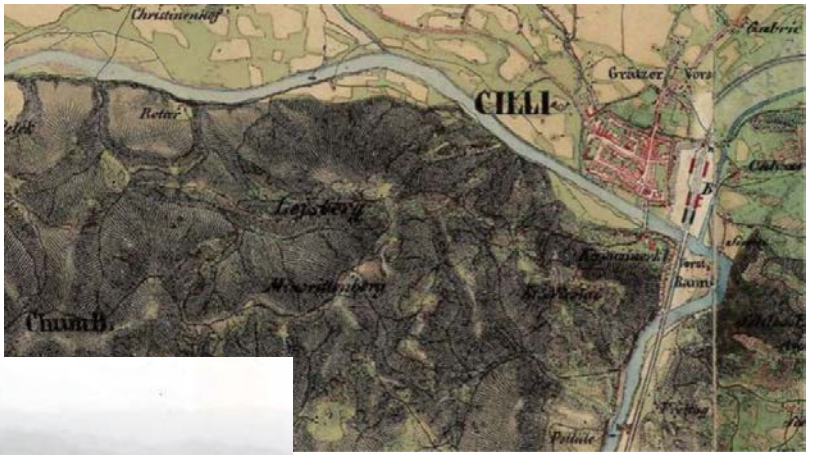


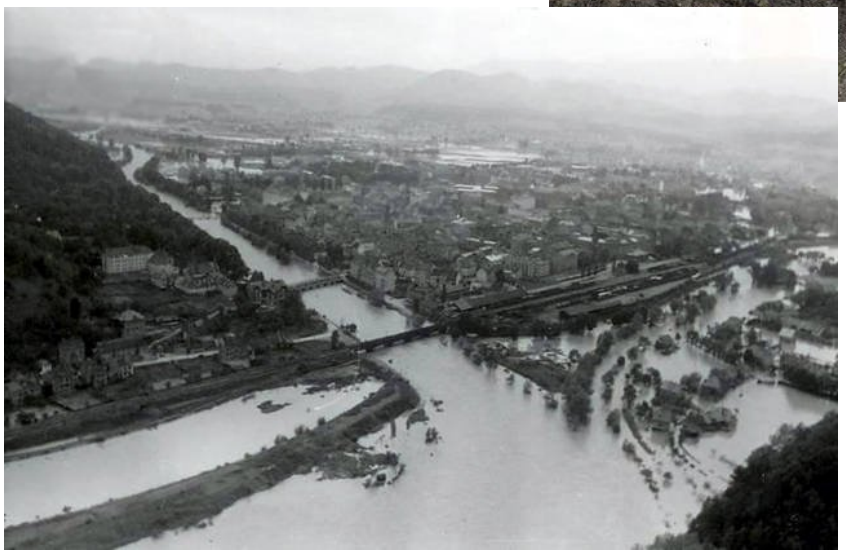
Integrity ecohydrlogy, floods, morphology

1991
Full stream discharge 20 m3/s

2016
Full stream discharge 5 m3/s

Celje 1764 – 1886 - 1954

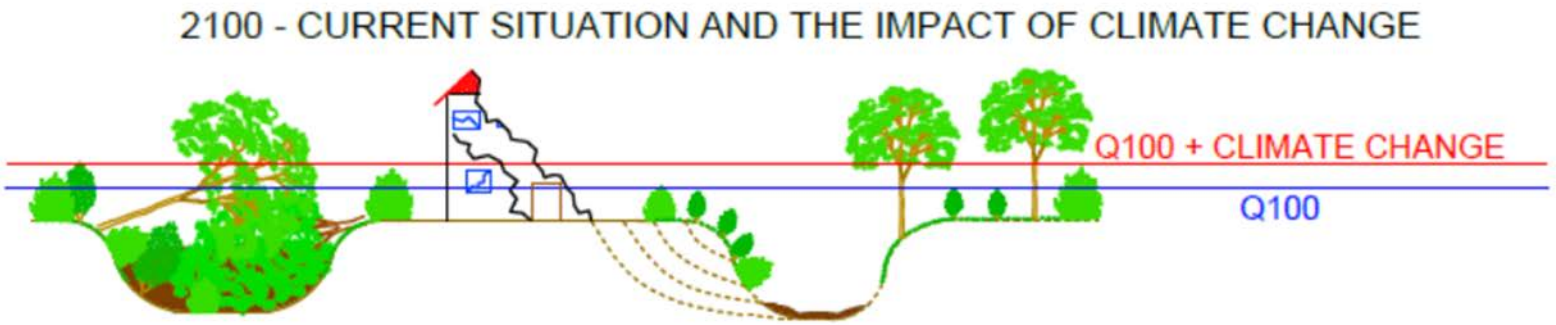




More room for water

- More room for river
- More room for water in urban areas
- More room for water in space
- More room for water for remediation

Or solution as usual



Recent projects

- Impact of climate change on the Sava River Basin
- Impact of the flood protection measures on the Savinja River
- Summer school on Natural hazard
- Programme for Flood protection measures on the Sava River Basin

Always take a full picture in mind!

Principles of water policy

Water is irreplaceable substance.
Water is a public good.
Water policy must be democratic
Water policy must be integrated
Water policy should be catchment based
Water is an irreplaceable part of nature.

Nature of problems

V Klemeš “Risk Analysis: The Unbearable Cleverness of Bluffing”

- **Kunk – known unknowns**. They justify analyses by rigorous mathematical methods and should be treated as such.
- **Unkunk – unknown unknowns**. They are unpredictable real-life uncertainties and risks. They should be treated by care.
- **Skunks – known which stinks**. They should be avoided.

Recent Activities

- Experimental basins
- Field equipment
  - ADV SonTek
  - Disdrometers
- Interdisciplinary research
  - Victims
  - Real estate
- Copola functions in hydrology
- Calibration of hydrological model by PEST
- Flood research – Savar River Basin

Welcome next year summer doctoral school disaster risk reduction