

**jOiNEd For sUsTainability - bUilding climate REsilient
communities in WB and EU**

Climate and sustainability practices

Project management meeting
University of Tuzla

*Date: June 15th 2023
Place: Lund, Sweden*



Co-funded by the
European Union



Presentation outline

- Education (sustainability and climate change)
- Research and innovation
- University operations and infrastructural projects
- Future campus





University of Tuzla

1. Academy of Dramatic Acts
2. Faculty of Special Education and Rehabilitation
3. Faculty of Economics
4. Faculty of Electrical Engineering
5. Faculty of Physical Education and Sport
6. Faculty of Pharmacy
7. Faculty of Philosophy
8. Faculty of Mechanical Engineering
9. Faculty of Medicine
10. Faculty of Law
11. Faculty of Natural Sciences and Mathematics
- 12. Faculty of Mining Geology and Civil Engineering**
13. Faculty of Technology



Study programs (sustainability and climate change)



- Faculty of Technology
 - I, II and III cycle study programs: **“Engineering in environmental protection”**
- Faculty of Mining Geology and Civil Engineering
 - Master program: **“Disaster Risk Management and Fire Safety Engineering”** (K- FORCE - Knowledge FOr Resilient soCiEty Erasmus+ Project)
- Faculty of Natural Sciences and Mathematics
 - Master program: **“Ecological monitoring and aquatic bio-assessment”** (ECOBIAS – Development of master curricula in ecological monitoring and aquatic bioassessment for Western Balkans HEIs – Erasmus+)



Courses (sustainability and climate change)



Faculty of Technology:

- Rationalization of energy consumption in food industry processes,
- Sustainable technologies in food processing engineering

Faculty of Electrical Engineering:

- Energetics and environment,
- New technologies in energy conversion systems,
- Electromagnetic pollution

Faculty of Mechanical Engineering:

- Renewable energy sources,
- Industrial ecology,
- Environmental development,
- Power plants and environment



Courses (sustainability and climate change)



Faculty of Economics:

- Economics of sustainable development,
- Sustainable development and tourism

Faculty of Law:

- International environmental law

Faculty of Medicine

- Study of sanitary engineering: Ecological engineering





Faculty of Mining Geology and Civil Engineering - COURSES

Mining:

- BSc: Energy resources and energetics, Environmental protection, Geoenvironmental engineering (ELECTIVE),
- MSc: Mine closure and reclamation, Environmental risks management

Geology:

- BSc: Environmental geology, Basics of groundwater protection

Civil engineering:

- BSc: Environmental and urban environment protection

Drilling and Well Engineering

- BSc: Safety and environmental protection





- Safety engineering – BSc **courses**:
 - Physical hazards,
 - Energetics and sustainable development,
 - Safety standards and regulations,
 - Environmental safety,
 - Natural hazards and disasters,
 - Civil protection,
 - Chemical, biological and radiation hazards,
 - Safety in mining and energetics,
 - Waste management,
 - Water protection planning,
 - Hazards and environmental protection,
 - Risk management and investigative procedures in safety (ELECTIVE),
 - Ecogeophysics (ELECTIVE)





Research and innovation

- Innovations - Faculty of Mechanical engineering (Prof. Fikret Alic -72 international awards):
 - 2009, “Eco air filter system of internal combustion engine”
 - 2010, “Convective ionic cooler of electronic implements”
 - 2022, “Flexible Thermal-Accumulation Convective Emitter”





Innovations - Faculty of Technology

- Prof. Zehrudin Osmanovic:
 - 2015, “Converting of chemical waste in the cement”
 - 2019, “Removing Coke Gas Deposits”
 - 2021, “Diminution of CO₂ Emission In The Concrete And Soda Production”
 - 2021, “Integration method of processes for the production of cement and soda to reduce CO₂ emissions”
- Reserach project: “Bioremediation of areas devastated by industrial waste”
- Student’s research project: “Composite materials based on cement with the admixture of waste materials: glass, sheep's wool and Paulownia wood” (3rd place „3MT” (Bosnia & Herzegovina Futures Foundation, Bosnian-Herzegovinian American Academy of Arts and Sciences)





Science and Research - RGGF

- NATO SfP 983305 „ Development of a Monitoring System to Counter-manage the Risks of Subsidence Deformation on the Population of Tuzla“ 2009-2012
- NATO SfP 983828 „Seismic upgrading of Bridges in South-East Europe by Innovative Technologies“ 2009-2013
- TEMPUS BAEKTEL (544482-TEMPUS-1-2013-IT-TEMPUS-JPHES) 2013-2017
- safEarth Interreg – IPA CBC Croatia - Bosnia and Herzegovina – Montenegro / „Transnational advanced management of land use risk through landslide susceptibility maps design “ 2014-2020
- NIK - Youth Scientific and Research Camp (US Embassy) 2016-2019
- ERASMUS+ BESTSDI - 574150-EPP-1-2016-1-HR-EPPKA2-CBHE-JP, Western Balkan Academic Education Evaluation and Professional's Sustainable Training for Spatial Data Infrastructures 2016-2019
- ERASMUS+ K-FORCE - Knowledge For Resilient Society 2016-2019
- CP1-1 Mercury (Hg) soil and groundwater assessment at HAK 1, Chemical industrial complex, Tuzla, Bosnia & Herzegovina, UNEP 2022 - 2023
- RESPONSa - Response to landslide and flash flood risk with Early Warning System design (Interreg IPA Cross-border Cooperation Programme Croatia-Bosnia and Herzegovina-Montenegro) 2020-current





Science and Research RGGF - projects

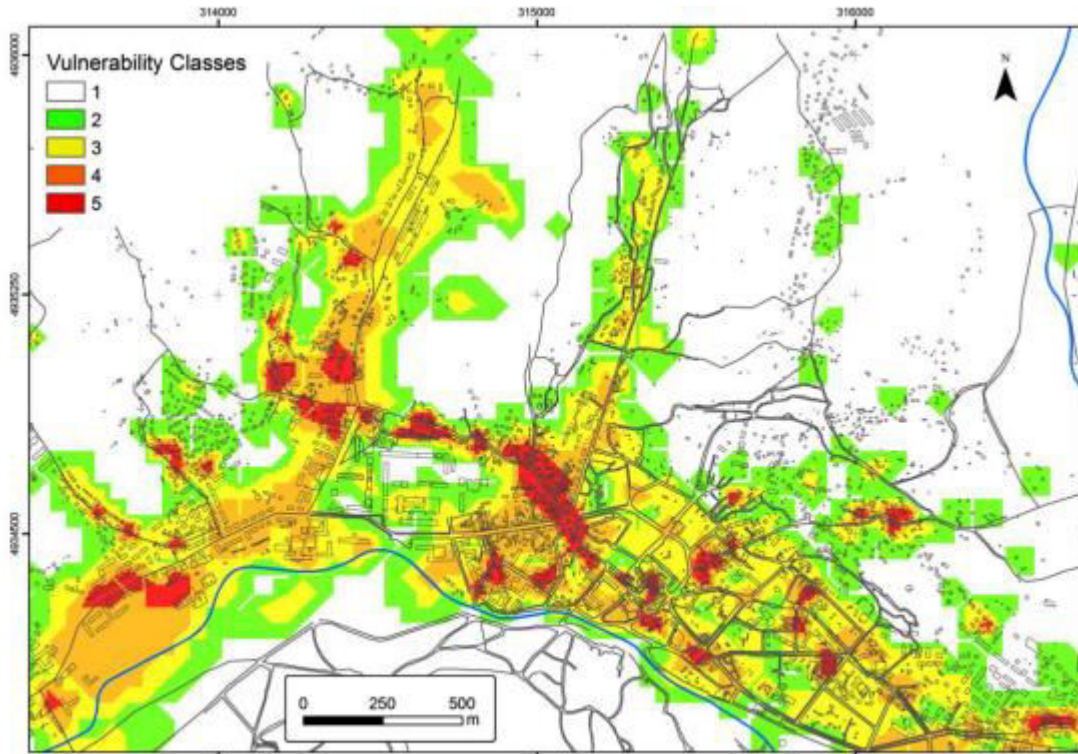


Fig. 2: Vulnerability map produced by the ELECTRE methodology

NATO SfP 983305 „ Development of a Monitoring System to Counter-manage the Risks of Subsidence Deformation on the Population of Tuzla“ 2009-2012

- Industrial production of salt water started in 1886
- Massive exploitation from 150 wells at an average depth of 400-500 meters
- Demolition of about 2.700 buildings during the last 60 years
- About 15.000 people had to move
- Useful information for understanding the deformation phenomenon in the city of Tuzla

More at: www.nato.int/science/2010-02-04-presentations/Rijad%20Sisic_cmp.pdf



Co-funded by the
European Union



Science and Research RGGF - projects

Mercury (Hg) soil and groundwater assessment at HAK 1, Chemical industrial complex, Tuzla, Bosnia & Herzegovina, UNEP 2022 – 2023

- to identify possible mitigation measures and viable technical and feasible remediations/treatment plans
- Hg assessment also provides a preparatory step towards the national ratification of the Minamata Convention





Science and Research RGGF - projects

Response to landslide and flash flood risk with Early Warning System design RESPONSa (Interreg IPA Cross-border Cooperation Programme Croatia-Bosnia and Herzegovina-Montenegro) 2020-present

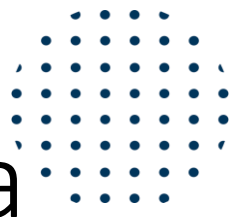
- Establishment of landslides and flash floods early warning system
- Operative procedures for various geohazard scenarios

More at www.hgi-cgs.hr/responsa



Co-funded by the
European Union

Conferences, symposiums – University of Tuzla



- “Environmental resources, sustainable development, and food production - OPORPH 2023”
- “Decarbonization of energy sector in Bosnia and Herzegovina”, 2022
- “Education for sustainable development” – 28th Summer University, 2023



01-30.
2023.



Co-funded by the
European Union



Training

“Sustainable university – enterprise cooperation for improving graduate employability” - Erasmus + Project, Start up training, 2023

“Summer School On Environmental DNA Metabarcoding”- ECOBIAS – Erasmus+ Project “Development of master curricula in ecological monitoring and aquatic bioassessment for Western Balkans HEIs” , 2022

“Sustainable Development Week in Bosnia and Herzegovina” – workshop “Sustainable development” by Embassy of France and the French Ministry of Environment and Development, 2012

“Lake pollution Management” – NEWEN (Netherlands and Western Balkans Environmental Network) Project workshop, 2010



University operations and infrastructural projects



- Energy efficiency projects:
 - Faculty of Physical Education and Sport (reconstruction)
 - RGGF (windows and el. installation)
 - Faculty of Law + Student center - Pavilion I (roof, windows, facade)
 - Faculty of Technology (windows, facade)
 - SC pavillion III (roof, windows, facade)
- Digitalization (in proces – deadline date: Oct 2023)



FUTURE

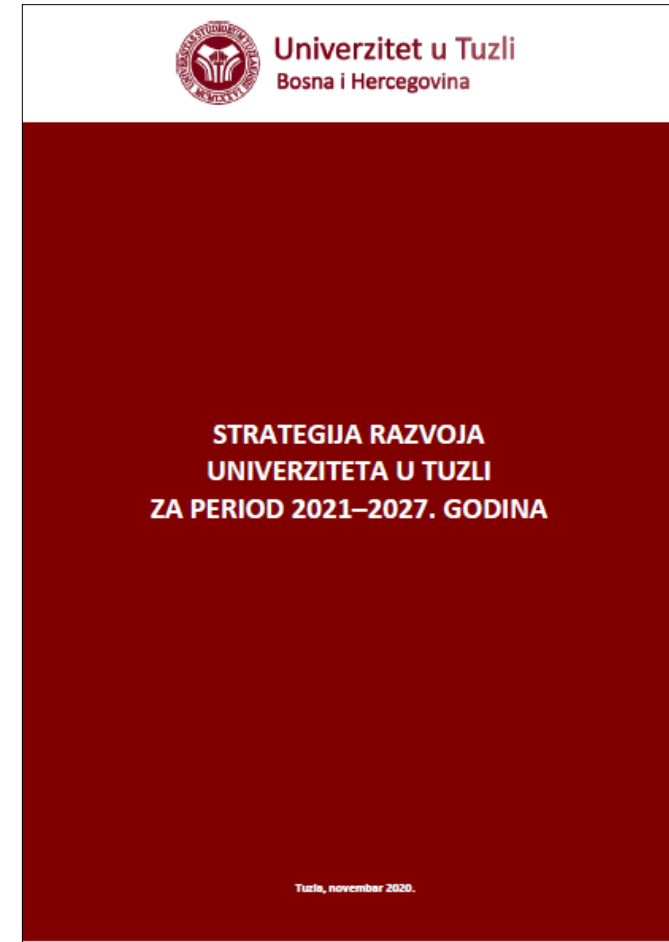


Co-funded by the European Union

University Strategy for the period 2021-2027



- Identified problems:
 - Low level of awareness about the possibilities of **using renewable energy sources**, which results in a low level of energy efficiency
 - **Insufficient development of study programs that affirms sustainable development.**
 - Absence of **purifiers** for laboratory waste.
 - **Information and communication technologies** can be part of the solution to the problem of preserving the environment and establishing sustainable development.







Thank you for your attention

*Contact info about the presenter:
edisa.nukic@untz.ba*

