



SETOF

Soil Erosion and TOrrential Flood
Prevention: Curriculum Development at the
Universities of Western Balkan Countries

Profile of the University of Natural Resources and Life Sciences, Vienna (BOKU)

www.boku.ac.at

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Mission of BOKU, Vienna

- education and research centre for renewable resources, which are a necessity for human life
- to contribute significantly to the protection of life resources for future generations
- connecting natural sciences, engineering and economics.

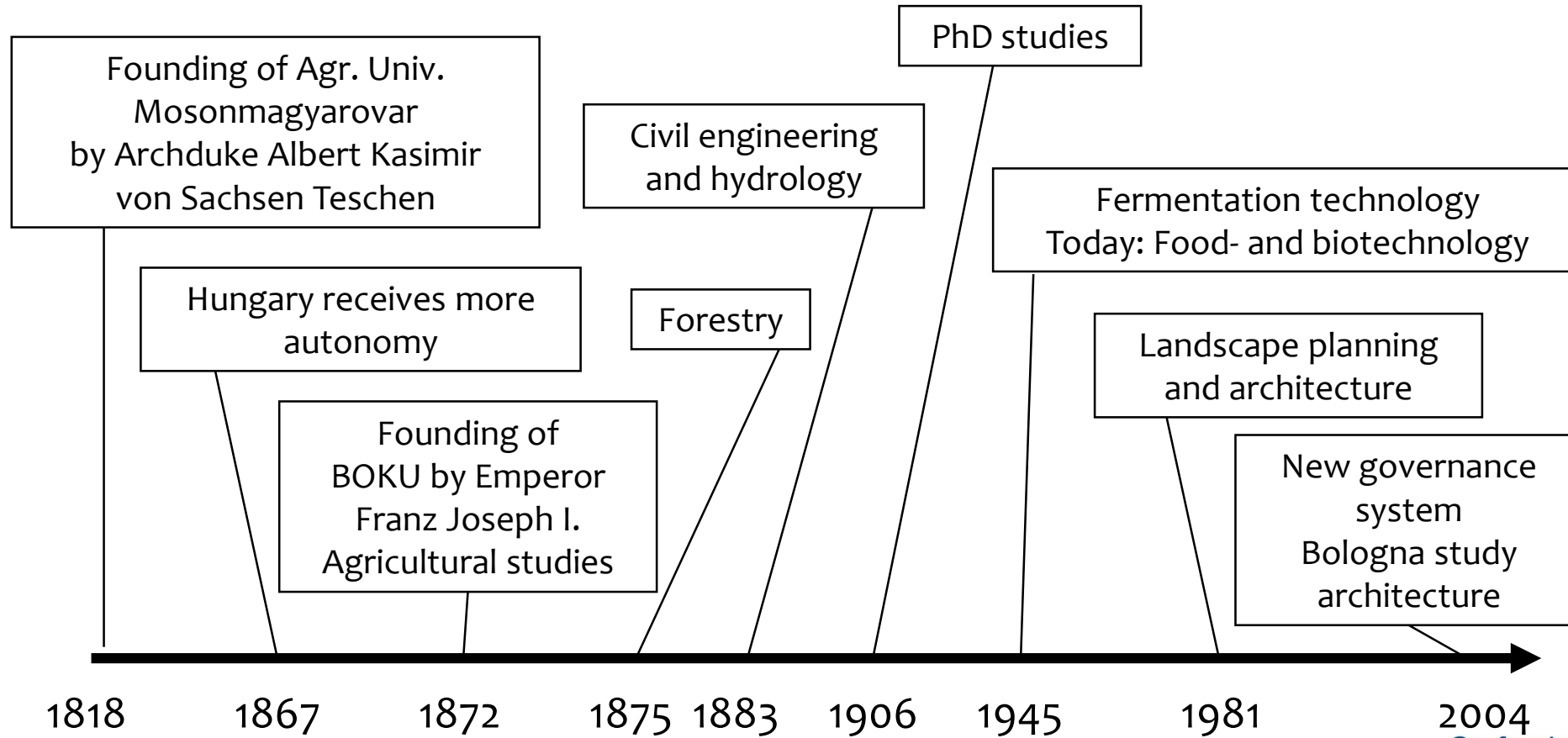
BOKU is trying to deepen the knowledge of an ecologically and economically sustainable use of natural resources in a cultivated landscape.

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Historical development of BOKU, Vienna





Facts and Figures of BOKU, Vienna

- ~ 13.000 students in 8 Bachelor, 26 Master (+ several double degree programmes; 11 Master programs in English) and several PhD programs (~ 800 students)
- ~1613 graduates per year; students satisfaction: top ranked in Austria; 20% foreign students;
- ~ 1600 employees (full time equivalent), 2550 employees (head count); ~700 scientists employed on a project basis; ~ 75 full professors (1/3 non Austrians), ~ 130 Assoc. Profs





Facts and Figures of BOKU, Vienna

- ~ 660 ongoing projects, ~ 70 EU projects, ~ 90 FWF projects, participation in several excellence projects (FWF, COMET, Christian Doppler, Laura Bassi, WWTF,...)
- 7 ERC Grants
- ~ 115 Mio € GUF, 50,9 Mio € external resources (basis 2016)
- ~ 2500 scientific publications per year (847 SCI), ~ 1400 presentations per year (more than 10.000 publications in the ISI databank; 26.000 citations per year)
- More than 100 patent families since 2004





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Bachelor programs at BOKU, Vienna

- Forestry
- Wood and Fibre Technology
- Environment and Bio Resources Management
- Environmental Engineering
- Food Sciences and Biotechnology
- Agricultural Sciences
- Landscape Architecture and Planning
- Equine Sciences

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Master programs (in German) at BOKU, Vienna

- Agricultural and Food Economics (H 457)
- Alpine Natural Hazards/Watershed Management (477)
- Biotechnology (H 418)
- Crop Sciences (455)
- Environment and Bio Resources Management (H 427)
- Environmental Engineering (H 431)
- Food Science and Technology (H 417)
- Forest Science (H 425)

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Master programs (in German) at BOKU, Vienna

- Landscape Architecture and Planning (H 419)
- Livestock Sciences (456)
- Organic Agricultural Systems and Agroecology (H500)
- Phytomedizin (H 422)
- Wildlife Ecology and Wildlife Management (H 423)
- Wood Technology and Management (H 426)

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Master programs (in English) at BOKU, Vienna

- Animal Breeding and Genetics
- Applied Limnology – Wetland Management
- **Environmental Sciences – Soil, Water and Biodiversity**
- European Forestry
- Horticultural Sciences
- Material and thermal utilization of renewable raw materials
- **Mountain Forestry**
- **Natural Resources Management and Ecological Engineering**
- Organic Agricultural Systems and Agroecology
- Safety in the Food Chain
- Sustainability in Agriculture, Food Production and Food Technology in the Danube Region
- Viticulture, Oenology and Wine Economy
- **Water Management and Environmental Engineering**
















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Departments at BOKU, Vienna

- Organized in 15 departments

 Department für Materialwissenschaften und Prozesstechnik (Department of Material Sciences and Process Engineering)	 Department für Raum, Landschaft und Infrastruktur (Department of Landscape, Spatial and Infrastructural Sciences)
 Department für Biotechnologie (Department of Biotechnology)	 Department für Wirtschafts- und Sozialwissenschaften (Department of Economics and Social Sciences)
 Department Wasser-Atmosphäre-Umwelt (WAU) (Department of Water, Atmosphere and Environment)	 Department für Nachhaltige Agrarsysteme (Department of Sustainable Agricultural Systems)
 Department für Nanobiotechnologie (DNBT) (Department of Nanobiotechnology)	 Department für Bautechnik und Naturgefahren (Department of Civil Engineering and Natural Hazards)
 Department für Chemie (Department of Chemistry)	 Department für Wald- und Bodenwissenschaften (Department of Forest- and Soil Services)
 Department für Integrative Biologie und Biodiversitätsforschung (Department of Integrative Biology and Biodiversity Research)	 Department für Nutzpflanzenwissenschaften (Department of Crop Sciences)
 Department für Lebensmittelwissenschaften und Lebensmitteltechnologie (Department of Food Sciences and Technology)	 Interuniversitäres Department für Agrarbiotechnologie, IFA-Tulln (Department of Agrobiotechnology / IFA Tulln)
	 Department für Angewandte Genetik und Zellbiologie (DAGZ) (Department of Applied Genetics and Cell Biology)





Department of Civil Engineering and Natural Hazards

Department of Civil Engineering
and Natural Hazards

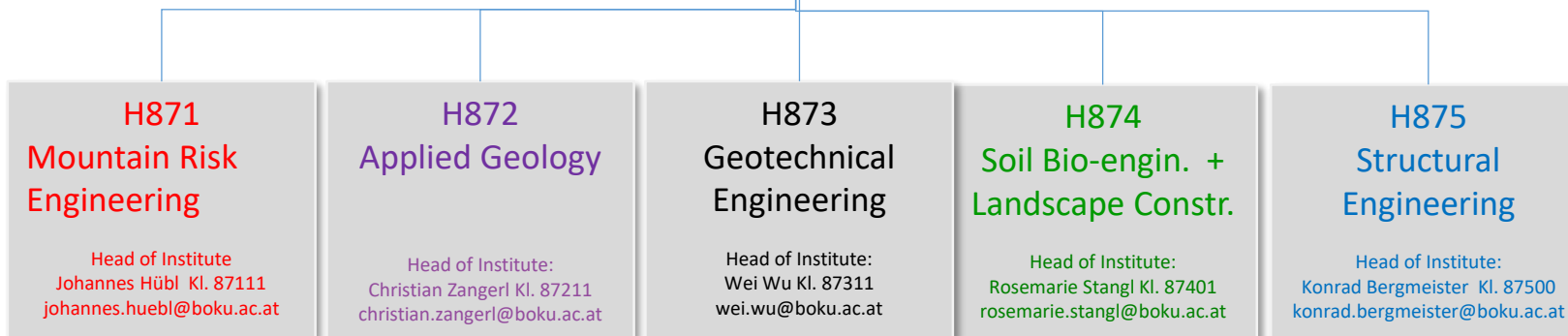
Head: Univ.-Prof. Dr. Markus Fiebig

Department Administration

Office: Evelin Kamper Kl. 87500

Financial: Monika Stanzer Kl. 87100

IT: Thomas Rossipaul Kl. 87551





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Department of Civil Engineering and Natural Hazards

- The Department of Civil Engineering and Natural Hazards is intended to be a centre of competence in the fields of applied geology, geotechnics, natural hazards research in the alpine environment, close to nature and resource oriented construction and structural engineering.
- The department acts as an innovative link between the traditional disciplines of construction engineering and nature and resource oriented fields of knowledge.
- Modern societies depend on the responsible management of resources and hazards. A profound understanding of the earth's systems is therefore the basis for safely and sustainably living with our environment.

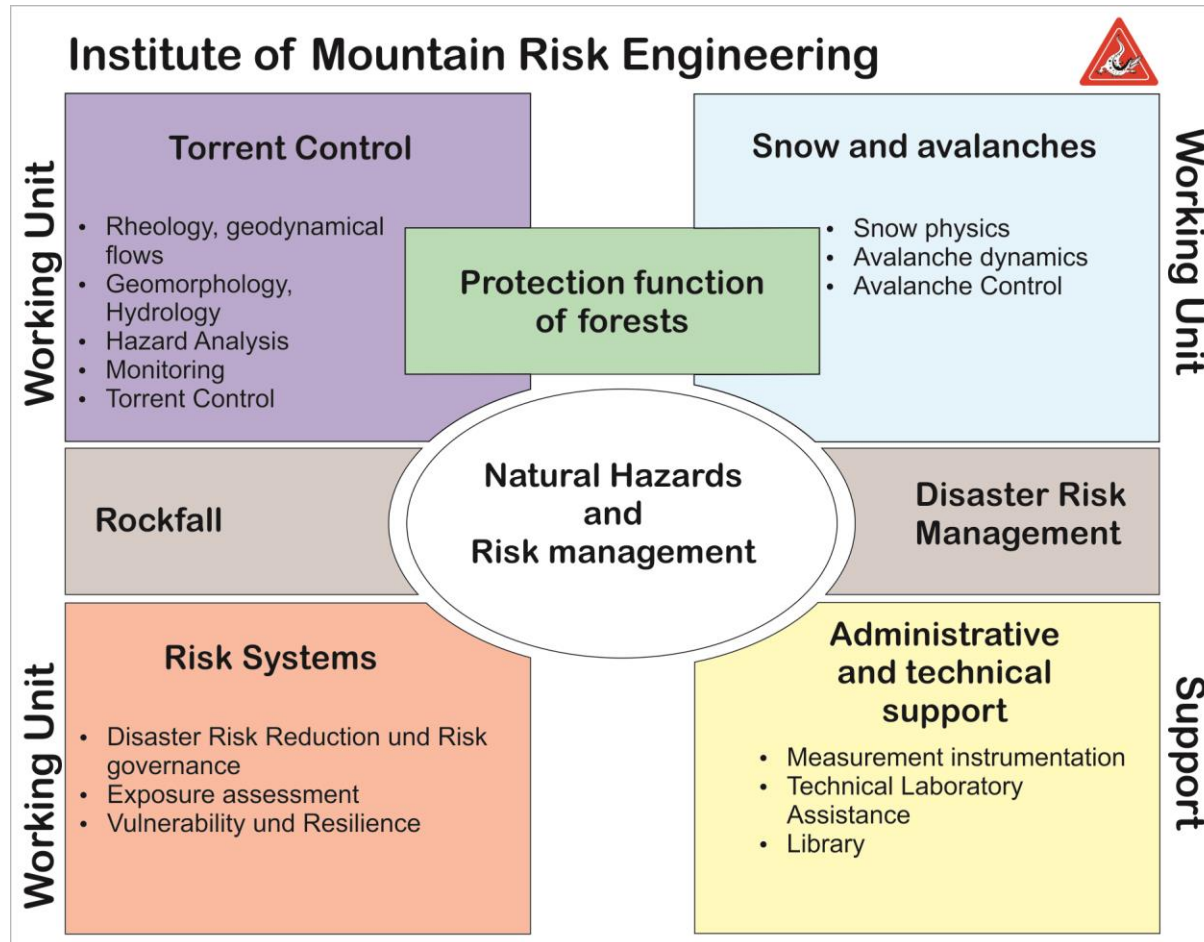
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Institute of Mountain Risk Engineering

- Structure





Institute of Structural Engineering

• Structure

Structures

- Fastening techniques
- 3D-Scan: Videoextensiometre
- Static & dynamic ndt & sdt testing
- CD-Lab: Internat. Leading Research
- Accredited testing laboratory acc. to ISO/IEC 17025

Konrad Bergmeister/Roman Wan-Wendner

Life Cycle + Performance Assessment of structures

Systemanalyses/Soft Computing

- Numerical 3D Simulations
- Building interaction / environment
- Degradation processes/ Performance
- Multi-physical phenomena

Structural Health Monitoring

- Condition assessment
- Structural optimization

Life cycle & Performance

- Infrastructure buildings
- Torrential barriers

Alfred Strauss/Konrad Bergmeister

Buildings

Resource-efficient buildings

- Solar Architecture
- Ecological + eco-efficiency
- Sustainability
- Life cycle assesement

Benjamin Kromoser





Masterprogram NatHaz/WLV

- Knowledge, skills, personal and professional competences
 - The aim of the program is that the students are able to identify potential hazards in mountainous areas in terms of magnitude and frequency and are able to design and build effective and efficient strategies of protection
 - Fundamental knowledge therefore should be acquired within this Masterprogram.
 - Hazards in mountainous areas:
 - Flood
 - Debris flows
 - Avalanches
 - Slides
 - Rockfall





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Masterprogram NatHaz/WLV

- **Activities**
 - Analysis and evaluation of hazards in mountainous areas
 - Prevention measures
 - Watershed management
 - Risk prevention
 - Disaster management
- **Entry requirements**
 - Bachelorprograms forestry and / or water management
Special requirements: basic knowledge in hydraulics, geotechnics and silviculture

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Masterprogram NatHaz/WLV

- Structure of the program (120 ECTS)
 - Compulsory lectures: 20 ECTS-Punkte
 - Water related hazards (8 ECTS)
 - Snow related hazards (6 ECTS)
 - Geohazards (6 ECTS)
 - Master seminar: 2 ECTS-Punkte
 - Master Thesis: 30 ECTS-Punkte
 - Elective courses: 50 ECTS-Punkte
 - Free elective courses: 18 ECTS-Punkte





Masterprogram NatHaz/WLV

- Structure of the program
 - Elective courses (Specialisation)
 - Main subjects
 - Civil engineering (8 ECTS)
 - Management of protection forest and soil bioengineering (9,5 ECTS)
 - Sozioeconomy und law (8 ECTS)
 - Risk prevention (6 ECTS)
 - Disaster mangement (6 ECTS)
 - Application
 - Watershed management (6 ECTS)
 - Modeling and Simulation (8 ECTS)
 - Forest engineering and work site planning (8 ECTS)





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Masterprogram NatHaz/WLV

- Areas of profession
 - Public sector
 - Consultancies
 - Freelancer
 - Research and development

Curriculum (only German version)

[http://www.boku.ac.at/fileadmin/data/H01000/mitteilungsblatt/MB_2014_15/MB19/066_477_Ma
stercurriculum_AlpNet_2015U.pdf](http://www.boku.ac.at/fileadmin/data/H01000/mitteilungsblatt/MB_2014_15/MB19/066_477_Ma
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Masterprogram NatHaz/WLV



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