

**Final report on the project
AKTION 85p7
“Splash erosion – initial stage of soil erosion processes”
for year 2019**

Czech partner:
Department of Landscape Water Conservation
Faculty of Civil Engineering
CTU in Prague
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Austrian partner:
Department of Water, Atmosphere and Environment,
Institute of Hydraulics and Rural Water Management
University of Agricultural Sciences (BOKU) Wien
Andreas Klik Prof., Dipl.Ing. Dr.

Reported project is the first half of two-years project, approved by AKTION agency for 2019 - 2020.

The topic of the project for 2019 had been at first exchange visit of teams of CTU Prague and BOKU Wien, to coordinate ongoing research projects and students activities. At second it was to realize main educational activities: two intensive student courses with duration of one week each (1 week at CTU Prague and one week at BOKU Wien – one for Czech students in Wien and second for Austrian students in Prague). Following activities were performed within the AKTION project during 2019:

- Intensive course for Czech students at BOKU Wien (10. – 14.11.2019) – 14 students + 2 staff CTU Prague (“Applied methods of soil erosion research”) (list of participants – see attachment)
- Intensive course for Austrian students at CTU Prague (30 students + 2 staff BOKU Vienna) (17.11. – 21.11.2019) (“Assessment of soil erosion and surface runoff from agriculturally used watersheds, using GIS techniques”) (list of participants – see attachment)
- Visit of two BOKU staff at CTU Prague during 2. – 4.12.2019 (3 days – Dr. Johannsen) and 30.11. – 4.12.2019 (5 days – Dr. Zambon) (planning of further activities, evaluation of the course, assessment of measured data)
- Visit of one Czech staff at BOKU Wien during 26.11.2019 (single day trip by car, to deliver samples from students course in Prague for analysis in Vienna) (Dr. Bauer) – only travel expenses were covered from the project, no allowances.
- Visit of one Czech staff at BOKU Vienna during 28. – 30.11.2019 (doc. Dostál) to participate at common experimental campaign at laboratory rainfall simulator – to measure kinetic rainfall energy. Delivery of disdrometer from CTU Prague to BOKU Vienna. Assessment of common courses held in fall 2019

- Visit of one Czech staff at BOKU Vienna during 2. – 3.12. and 4.12.2019 (doc. Krása) to travel between Prague – Petzenkirchen (Prof. Strauss) and BOKU Vienna to transport samples, give final presentations of results and to post process results – experimental data from commonly held experiments during courses and following campaigns.
- Visit of one Czech staff at BOKU Vienna during 12. – 13.12.2019 (M.Běhounková) to finalize laboratory experiments, pick up samples for laboratory analysis in Prague and to transport disdrometers after experimental season back to Prague. (only travel expenses were covered from AKTION project, no allowances)
- Visit of one Czech staff at BOKU Wien during 17.12.2019 (single day trip by car, to deliver last parts of samples and equipment from Prague to Vienna, finalizing presentation and planning follow up activities. Celebration of 25th common course) (doc. Dostál) – only travel expenses were covered from the project, no allowances.

Within the project, all two planned courses were realized in planned duration and terms, with planned number of participants. Concerning of the staff visits, some partial changes have been adopted, mainly in terms and number of visits. The organizers succeeded and saved part of the money, mainly due to they have got a significant credit for accommodation prices in Prague, in comparison to originally announced ones + several Austrian students did not use offered accommodation and stayed with they friends during the course in Prague. Also reduction of price of train tickets compared to original calculation of Czech Railways and fact, that several Czech students travelled on their own way and did not join common train ticket provided by AKTION course. Due to described savings (in detail presented in table bellow) we could increase number of mutual visits of staff during fall, to realize further common activities. 4 more visits of Czech staff were realized above original plan and visits of Austrian staff were prolonged to 8 days, compared to 6 originally planned. Ca 10 native student participated at the courses for foreign students in Prague and in Vienna. The rest of money in total amount ca 15.000,- were (after preliminary agreement with AKTION office) used to cover material expenses of courses (small office material)

Detailed specification of main activities:

1. Course at BOKU Wien under the title “Applied methods of soil erosion research “ during 10. - 14.11.2019 with following program:

- 10.11.2019 – arrival of the participants, welcome, introduction
- 11.11.2019 – general methodological presentations and lectures, first part of laboratory works (rill erodibility experiments, splash erosion experiments)
- 12.11.2019 – modeling of erosion processes in soil laboratory (rill erodibility experiment, aggregate stability experiment, laboratory rainfall simulator – splash erosion). Common dinner.
- 13.11.2019 – field trip to experimental plots, presentation of soil conservation technology – Mistelbach, Obersiebenbrunn
- 14.11.2019 – calculation of measured results, statistical evaluation of measured data, final discussion, conclusion, finishing of the course, departure of the participants

There were in total 24 students and 4 teachers participating at the course – from the Czech Republic 14 students and 2 teachers (Doc.Dr.Ing. Tomáš Dostál and Ing. Miroslav Bauer, Ph.D.) and from Austria 10 students and 2 teachers (Prof. Dr. Andreas Klik and Eng. Gunther Liebhard). Name list is enclosed.

II. Course at CTU in Prague under the title „Assessment of soil erosion and surface runoff from agriculturally used watersheds, using GIS techniques“ held on 17. – 21.11.2019 with following program:

17.11.2019 – arrival of the participants, welcome, introduction

18.11.2019 – introduction lectures, basics of computer modeling. Common dinner.

19.11.2019 – soil loss calculation using GIS techniques. Experimental determination of splash erosion and kinetic energy of raindrops using rainfall simulator.

20.11.2019 – sediment transport from the watershed assessment, using GIS technology

21.11.2019 - results assessment, final discussion, conclusions, departure of the participants

There were in total 40 students participating at the course and 8 teachers – 10 students and 6 teachers (doc.Dr.Ing. Tomáš Dostál, doc. Ing. Josef Krása Ph.D., Ing.Miroslav Bauer, Ph.D., Ing. Martin Neumann, Ing.Tomáš Laburda and Ing. Pavla Schwarzová Ph.D) from the Czech Republic and 30 students and 2 teachers from Austria (Prof. Dr. Andreas Klik, Dr.. Giuseppe Brunetti). Name list is enclosed.

At the end of common courses the participants obtained certificates, which approved, that students passed intensive course, held under AKTION project 85p7. The sample of the certificate is enclosed. The one sample report of one student group worked during their activities within the course, which they submitted at CTU Prague to be evaluated are also enclosed at the project report. Several photos from course in Vienna and Prague are also included to document various activities performed.

Some money from CTU budget has been saved compared to original plan, regardless of significant extension of activities (increased number of staff visits from both sides). Those money were effectively redistributed mainly to support increased number of visits and cooperation and in minority (15.008,- CZK) to cover material expenses directly related to this and previous courses – mainly related to printing of study materials, certificates, data distribution and similar (printing cartridges, papers, etc.). Effective use of those money are declared also by Faculty representative – see below.

Allocated budget has been used effectively and fully with no excess. Detailed specification is presented at the table:

Activity	Expenses – planned (CZK)	Expenses – reality (CZK)
Travel expenses Prague – Vienna (student course)	18.600,-	8.669,-
Travel expenses Prague – Vienna (staff visit)	3.200,-	26.401,-
Allowances for student course in Prague	47.000,-	45.000,-
Accommodation for the course in Prague	83.000,-	52.800,-
Allowances BOKU staff in Prague	3.000,-	4.000,-
Accommodation BOKU staff in Prague	3.200,-	4.120,-
Small office material	0	15.008,-
Total	158.000,-	158.000,-

All the invoices are stored at the economic department of CTU Prague. Regardless of relatively significant changes in project organization and general enlargement of the project's goals, the expenses have not been exceeded at all.

List of participants from the Czech Republic at the course at BOKU Wien in November 2019:

Students:

1. Nina Noreika
2. Radka Anýžová
3. Jan Sklenář
4. Jakub Hrubý
5. Jan Kubát
6. Hana Klímová
7. Marcela Bubíková
8. Martina Paldusová
9. Iveta Pelánová
10. Simona Rožňovjaková
11. Pavel Kratochvíl
12. Šimon Jirásek
13. Štěpán Goldberg
14. Marie Novotná

Professors:

1. Doc.Ing.Dr. Tomáš Dostál
2. Ing. Miroslav Bauer, Ph.D.

List of participants from Austria at the course at CTU Prague in November 2019:

Students:

- 1 Breuß Judith Johanna
- 2 Courthaudon Lucine
- 3 Hampf Anna
- 4 Loos Lorenz
- 5 Oehler Saskia
- 6 Palombi Bianca Renee
- 7 Pfeiffer Christoph
- 8 Remlinger Vivian Isabell
- 9 Riebl Fabian
- 10 Thier Maximilian
- 11 Vergnaud Loïse Suzanne
- 12 Baugher Kyle
- 13 Berg Sebastian
- 14 Breu Sandra
- 15 Harton Kaja Agnieszka
- 16 Laudacher Mathias
- 17 Panzenböck Franz
- 18 Pomes-Bordedebat Alexandre
- 19 Quaresma Pereira da Silva Luiza

- 20 Sánchez Amrhein Helena
- 21 Stecher Gabriel
- 22 Tratnik Christopher
- 23 Zodov Dolgorsuren
- 24 Benet Bayo Judith Angela
- 25 Kienböck Elke
- 26 Tatzreiter Raphael
- 27 Holzmann Matthias
- 28 Hecht Erich
- 29 Wiesmair Doris
- 30 Wimmer Julia

Professors:

- 1. Prof. Andreas Klik
- 2. Dr. Giuseppe Brunetti

Project leader and Head of Faculty declare, that all CZK financial sources were used effectively and with maximum care to provide profit for students, participating at main dedicated activities (student courses, held at CTU Prague).

In Prague 25.1.2020

**Project leader
Doc. Ing. Dr. Tomáš Dostál**

**Head of institution – dean
Prof. Ing. Jiří Máca, CSc.**

