

Final report on the project  
**AKTION 82p3**  
**“Research and modelling of on- and off-site effects of soil  
erosion and sediment transport”**  
***for year 2018***

Czech partner:

Department of Drainage Irrigation and Landscape Engineering  
Faculty of Civil Engineering  
CTU in Prague  
Tomáš Dostál doc.Ing.Dr.

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 second half of two-years project, approved by AKTION agency for 2017 – 2018.

The topic of the project for 2018 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 2018:

- Intensive course for Czech students at BOKU Wien (4. – 8.11.2018) – 14 students + 2 staff CTU Prague (Applied methods of soil erosion research)
- Intensive course for Austrian students at CTU Prague (40 students + 2 staff BOKU Vienna) (25. – 29.11.2018) (GIS simulations of soil erosion and sediment transport processes)
- Visit of two BOKU staff at CTU Prague during 27. – 28.11.2019 (planning of further activities, contribution at the course, assessment of measured data) (Dr.Nolz, Dr.Strauss)
- Visit of two BOKU staff at CTU Prague during 29. – 30.11.2018 (evaluation of student courses, preparation of further activities) (Dr.Brunetti, Dr.Stockinger) – only allowances were paid, no accommodation.
- Visit of one Czech staff at BOKU Wien during 6. – 8.12.2018 (preparation of final report, summarization of experiences, preparation of further activities) (Prof.Dostál) – no travel expenses were covered from the project, only allowances.
- Visit of one Czech staff at BOKU Vienna during 9. – 11.12.2018 (Ing.M.Bauer) to participate at common experimental campaign at laboratory rainfall simulator. Delivery of disdrometer from CTU Prague to BOKU Vienna.

- = Visit of one Czech staff at BOKU Vienna during 12. – 13.12.2018 (M.Běhounková) to finalize laboratory experiments, pick up samples for laboratory analysis and to transport disdrometers after experimental season back to Prague (only travel expenses were covered from AKTION project)

Within the project, all two planned courses were realized in planned duration and terms, just with increase of number of participants at Austrian side, without increasing of planned costs. Concerning of the staff visits also 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 and also reduction of price of bus tickets compared to train, which was originally planned. Also, after agreement with Austrian partner, allowances for students in Prague were reduced. Due to this fact, the number of Austrian participants of the course could be increased (40 students compared to 30 planned) and additional two days visit of two people from BOKU (November 2018) could have been supported. Ca 10 native student participated at the courses for foreign students in Prague and in Vienna.

#### **Detailed specification of main activities:**

##### ***I. Course at BOKU Wien under the title “Applied soil erosion research methods” during 4. – 8.11.2018 with following program:***

- 4.11.2018 – arrival of the participants, welcome, introduction
- 5.11.2018 – general methodological presentations and lectures, first part of laboratory works (rill erodibility experiments, CO<sub>2</sub> analyses experiment)
- 6.11.2018 – modeling of erosion processes in soil laboratory (rill erodibility experiment, aggregate stability experiment, laboratory rainfall simulator – splash erosion).
- 7.11.2018 – field trip to experimental plots, presentation of soil conservation technology – Tulln, Hollabrun
- 8.11.2018 – 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 Doc.Ing.Josef Krása, 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 „ GIS simulations of soil loss and sediment transport “held on 25. – 29.11.2018 with following program:***

- 25.11.2018 – arrival of the participants, welcome, introduction
- 26.11.2018 – introduction lectures, basics of computer modeling
- 27.11.2018 – soil loss calculation using GIS techniques
- 28.11.2018 – sediment transport from the watershed assessment, using GIS technology, measurement on the laboratory rainfall simulator – soil loss, splash erosion

29.11.2018 - results assessment, final discussion, conclusions, departure of the participants

There were in total 50 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.Petr Kavka, Ph.D., Ing.Tomáš Laburda and Ing. Pavla Schwarzová Ph.D) from the Czech Republic and 40 students and 2 teachers from Austria (Prof. Dr. Andreas Klik, Eng.Gunther Liebhard). The number of Austrian students has been increased from planned 30 to 40, due to high interest at BOKU to take a part at the course. The number of participants from Austria has been increased due to the fact, that cheaper accommodation have been provided with university facilities and some funds were saved also from travel costs of Czech group to the course in Austria, where cheaper bus has been used. Total amount of CZK distributed as allowances to Austrian students was reduced according to agreement. 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 82p3. The sample of the certificate is enclosed. The evaluation of the course by several Czech students and report of 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 Austrian students, increased number of Austrian staff visits and increasing of Czech staff visits at BOKU). Those money were effectively redistributed mainly to support increased number of visits and cooperation and in minority (4.406,- CZK) to cover material expenses directly related to his and previous courses – mainly related to printing of study materials, certificates, data distribution and so on (printing cartridges, papers, presenter, 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:

<i>Activity</i>	<i>Expenses – planned (CZK)</i>	<i>Expenses – reality (CZK)</i>
Travel expenses Prague – Vienna (student course)	18.600,-	9.568,-
Travel expenses Prague – Vienna (staff visit)	3.200,-	10.286,-
Allowances for student course in Prague	47.000,-	45.000,-
Accommodation for the course in Prague	83.000,-	83.380,-
Allowances BOKU staff in Prague	3.000,-	4.000,-
Accommodation BOKU staff in Prague	3.200,-	1.360,-
Small office material	0	4.406,-
<b>Total</b>	<b>158.000,-</b>	<b>158.000,-</b>

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 2018:***

Students:

1. Tereza Kadlecová
2. Marek Petreje
3. Julie Winterová
4. Natálie Mikolajová
5. Marek Voženílek
6. Pavel Otruba
7. Eliška Zakouřilová
8. Markéta Novotná
9. Lucie Vachová
10. Petr Šimánek
11. Simona Hřebcová
12. Jan Pipta
13. Judita Runzciková
14. Daniela Runzciková

Professors:

1. Doc.Ing.Dr. Tomáš Dostál
2. Doc.Ing. Josef Krása, Ph.D.

***List of participants from Austria at the course at CTU Prague in November 2018:***

Students:

- 1 Aigner Christoph
- 2 Altunkaya Güven Kazim
- 3 Brunner Thomas
- 4 Deinhofer Martin
- 5 Diwold Michael
- 6 Dunst Roman
- 7 Fajtak Astrid
- 8 Ferstl Lena Theresa
- 9 Gruber Markus Franz
- 10 Guggenberger Kevin
- 11 Hesping Malena
- 12 Hill Shaille Maree
- 13 Iamsisanith Xaiyasith
- 14 Irsigler Severina Zita
- 15 Jenista Isabel
- 16 Kudláčová Alexandra
- 17 Lindau Antonia
- 18 Ludwigger Florian
- 19 Madrigal Sanchez Ana Maria

- 20 Mayrhofer Peter
- 21 Merl Kevin
- 22 Pelzmann Valentina
- 23 Pesendorfer Clara
- 24 Rauscher Bernd Johannes
- 25 Rosa Gianmarco Eric Claudio
- 26 Rösler Lisa Anna
- 27 Santos Pires Sabrina
- 28 Schnepps Michel
- 29 Seigmann Siegfried
- 30 Söllradl Sebastian
- 31 Sparr Judith Elisa
- 32 Stehrer Dominik
- 33 Steinmayr Katharina
- 34 Stockreiter Teresa
- 35 Stojic Slobodan
- 36 Sturmbauer Felix Martin
- 37 Tiefenbacher Alexandra
- 38 Urstöger Christina Diana
- 39 Wangert Susanne
- 40 Willner Magdalena

Professors:

1. Prof. Andreas Klik
2. Eng. Gunther Liebhard

*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 25.1.2019

Project leader  
Doc. Ing. Dr. Tomáš Dostál.

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

