

50 years of engineering geology at the Warsaw University

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Fifty years ago, on the 1st of October 1958, the first Chair of Engineering Geology in Poland was established at the Warsaw University. This paper reviews the major achievements and scientific activities of the staff of this Chair during the years 1958–1968 and of the Institute of Hydrogeology and Engineering Geology in the years 1968–2008.

Key words: engineering geology, jubilee, Warsaw University

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This special issue of “Geologija” is devoted to the 50th anniversary of engineering geology at the Warsaw University. Articles published in this issue, mainly those of the staff of the Institute of Hydrogeology and Engineering Geology of Warsaw University, review the current scientific projects conducted at the Institute. During the Jubilee Session to be held in September 2008, all these articles will be discussed at the presentation entitled “Engineering Geology in examinations of engineering subsoil”.

- 55 years ago, on the 1st of October 1953, the Department of Technical Geology (1953–2008) was founded
- 50 years ago it was transformed into the Chair of Engineering Geology (1958–2008)
- 40 years ago the Institute of Hydrogeology and Engineering Geology (1968–2008) was established.

When 50 years ago, in 1958, the first Polish independent academic Chair of Engineering Geology was established at the Warsaw University, it embraced a department of the same name and the departments of Soil Science and Engineering Subsoil Investigation (now Department of Geomechanics). The preparatory stage for establishing the Chair was the existence of the

Department of Technical Geology associated with the Chair of the Quaternary. The first mover and organizer of the Department and Chair was the nestor of engineering geology in Poland Prof. W. C. Kowalski (died 2004), in Poland commonly regarded as the founder of the so-called Warsaw school of engineering geology and, on an international scale, of the Polish school of engineering geology.

During its 50 years at the Warsaw University, engineering geology went through its ups and downs of prosperity abounding in research projects, habilitation and doctoral procedures alternating with times when all these activities were drastically limited. The most prosperous years for engineering geology had been those before the imposition of the martial law in 1981. After 1982, the rate of engineering geological work became noticeably lower. With the lack of habilitation procedures and, as a consequence, of independent scientific staff, the Department of Soil Science became redundant and was closed down in 2006. But hopefully, thanks to the now active numerous group of young PhD degree holders, the 20-year-long crisis can be successfully overcome.

The following scientific degrees and titles have been granted over the 50 years of Engineering Geology at the Warsaw University:

Venue	1953–1958 Department of Technical Geology	1958–1968 Chair of Engineering Geology	1968–2008 Institute of Hydrogeology and Engineering Geology	Total
Habilitation dissertations	0	3	11	14
Doctoral theses	1	12	58	71
Master's dissertations	51	204	462	717
Engineer's dissertations	22	12	0	34
Professor titles	0	0	9	9

Thus, a large group of specialists was educated who participated in the construction of such major engineering objects as open-pit mines, thermal and pumped-storage power stations, storage sites for power stations, sulphur and other waste, Central Railway Line as well as protective procedures on escarpments and river valleys within the area of urban agglomerations, and many others.

The number of graduated engineering geologists in Poland is minor as compared with the total number of graduated geologists. In practice, in 10 geologists only one will have graduated in engineering geology or engineering geology and hydrogeology.

In 1970, the Engineering Geology group of the Warsaw University together with the Polish IAEG Group has joined the International Association of Engineering Geology and the Environment. Staff members of the Institute of Hydrogeology and Engineering Geology have held key positions at the National Committee and participated at numerous conferences sponsored or co-sponsored by the Association. Frequent are contributions by our specialists to the Association's Bulletin.

The University Engineering Geology plays a substantial part in the engineering geological achievements, both Polish and international. Our colleagues have organized and participated in numerous scientific meetings, both domestic and with foreign participants, and in many symposia abroad. The cooperative links with renown scientific communities in Mid-Eastern and Western Europe and in Poland had a beneficial effect on the research progress at the Engineering Geological Centre of the Warsaw University.

The cooperation was most significant with the Chair of Engineering Geology and Soil Science of Moscow University, mainly before 1981. At present, our main cooperative partners are the team of the Chair of Hydrogeology and Engineering Geology of Vilnius University, supervised by Prof. K. Dundulis, and of Prof. P. Tuchołka from Université Paris Sud (Orsay). One of the outcomes of this cooperation are materials presented in this issue.

Now, at the Institute of Hydrogeology and Engineering Geology, engineering geology is being practiced at two departments:

- the Department of Engineering Geology, headed by Prof. R. Kaczyński, and
- the Department of Geomechanics, headed by Prof. J. Pinińska.

The staff of these departments numbers 12 PhD degree holders and 10 engineering-technical employees (with PhD or MSc degrees) and 6 post-graduate students. Two modern laborato-

ries are active in the field of engineering geology, specializing in examinations of soils and rocks.

The ongoing engineering geological research projects are as follows:

- theoretical basis of engineering-geology documentation, GIS application for mapping and spatial information analysis;
- forecast of engineering-geological changes in time and space, considering slope analysis, weathering, waste storage, filtration deformation issues;
- behaviour of natural and anthropogenic soils under static and dynamic loads;
- field and laboratory test analysis for designing engineering structures;
- expansive soils as protective barriers; problems of soft organic soils; unsaturated soils; influence of hydrocarbon contamination on soils.

The geomechanical investigations are based on:

- a complex assessment of the mechanical properties of rocks and rock massive at high pressures and temperatures;
- the evolution of the spatial variability of geomechanical parameters in both field and laboratory conditions for the purposes of assessing rock non-metallic resources, petroleum engineering, tectonophysics, stone buildings protection as well as environmental planning;
- the monitoring of prefailure and postfailure rock deformation and their lithological and tectophysical diversity;
- a correlation between the results of static investigations (evaluation of deformation process) obtained from high-stiffness press, and dynamic investigations (measurement of ultrasonic wave speed) as well as by measuring acoustic emissions;
- interpretation of the impact of roughness on rock mass stability;
- data obtained from the Geomechanical Data Base of Polish Rocks (BDG) in the GIS system (completed by the Department of Geomechanics).

It is only thanks to the involvement of Professors such as E. Falkowski, W. C. Kowalski, H. Łozińska-Stępień, J. Liszkowski and the work of many other colleagues who are no longer with us that engineering geology as a science and discipline has attained its present-day status.

Ryszard R. Kaczyński

50 METŲ INŽINERINĖS GEOLOGINĖS VEIKLOS VARŠUVOS UNIVERSITETE

Santrauka

Straipsnyje pateikiama trumpa inžinerinės geologijos mokslo tiriamosios veiklos apžvalga Varšuvos universiteto Geologijos fakultete. Per 50 metų nuo pirmosios Inžinerinės geologijos katedros įkūrimo bei 40 metų nuo Hidrogeologijos ir inžinerinės geologijos instituto įsteigimo Lenkijoje buvo parengta ir apginta 14 habilitacijos darbų, 71 daktarinė disertacija, 717 magistro ir 34 inžinieriaus baigiamieji darbai. Straipsnyje aptarta dabartinė mokslinių tyrimų problematika, apžvelgtas mokslinis bendradarbiavimas su Vilniaus universiteto Hidrogeologijos ir inžinerinės geologijos katedra. Visapusiškai inžinerinės geologijos veikla Varšuvos universitete bus aptarta jubiliejiniame lenkiškame leidinyje, skirtame inžinerinės geologinės veiklos 50-mečiui Varšuvos Universitete.

Ryszard R. Kaczyński

50 LAT GEOLOGII INŻYNIERSKIEJ NA UNIWERSYTECIE WARSZAWSKIM

Streszczenie

W pracy została przedstawiona w dużym uproszczeniu historia geologii inżynierskiej na Wydziale Geologii Uniwersytetu Warszawskiego. Ustalono, że w trakcie 50 lat od utworzenia pierwszej w Polsce Katedry Geologii Inżynierskiej i 40 lat od powstania Instytutu Hydrogeologii i Geologii Inżynierskiej zostało wykonanych: 14 prac habilitacyjnych, 71 prac doktorskich, 717 prac magisterskich, 34 prace inżynierskie.

Wyszczególniono aktualną problematykę badawczą. Podkreślona została współpraca z Katedrą Hydrogeologii i Geologii Inżynierskiej Uniwersytetu Wileńskiego. Pełen tekst historii geologii inżynierskiej zostanie opublikowany w wydaniu polskim z okazji 50-lecia Geologii Inżynierskiej w Uniwersytecie Warszawskim.

Рышард Р. Качиньски

50 ЛЕТ ИНЖЕНЕРНО-ГЕОЛОГИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ В ВАРШАВСКОМ УНИВЕРСИТЕТЕ

Резюме

Представлен краткий обзор осуществляемой на Геологическом факультете Варшавского университета научно-исследовательской деятельности в области инженерной геологии. За 50 лет, прошедших со дня учреждения первой в Польше Кафедры инженерной геологии, здесь – ее сотрудниками, а также сотрудниками созданного 40 лет назад Института гидрогеологии и инженерной геологии – было подготовлено и защищено 14 габилюционных, 71 докторская диссертация, 717 дипломных работ магистра и 34 дипломные работы инженера. В статье рассмотрена проблематика научных исследований в настоящее время. Отмечено научное сотрудничество с Кафедрой гидрогеологии и инженерной геологии Вильнюсского университета. Инженерно-геологическая деятельность в Варшавском университете будет более полно представлена в юбилейном польском издании, посвященном 50-летию инженерной геологии в Варшавском университете.