

FOREWORD

The ongoing changes in Poland result in specific transformations taking place in agricultural economy. More and more attention is paid to non-productive functions of rural areas, including environmental ones. The old notions need to be revised and new ideas should be implemented so that undertakings related to environmental protection and shaping, carried out in our country, could broaden their scope. In agriculturally advanced countries such undertakings have a form of comprehensive (extensive and consolidated) projects aimed at protecting, shaping, improving and developing rural areas, and are implemented in compliance with principles of sustainable development. These projects address and solve combined agricultural, environmental and landscape protection related goals, and they are carried out with an intention to increase work efficiency and improve living conditions in rural areas.

The actions, taken as part of programming, designing and operating comprehensive management of multifunctional agricultural and rural spaces, require interdisciplinary scientific research teams and engineering staff, because close interconnection of science and practice is a prerequisite of successful implementation of scientific achievements and solutions in the economy. Researchers of the Faculty of Environmental Engineering and Land Surveying take numerous initiatives to meet these challenges, as an attempt to put into effect the principles of innovative economy.

One of the most valuable initiatives was a foundation of *Geomatics, Landmanagement and Landscape* journal, edited by Prof. Urszula Litwin, PhD, Eng., where researchers and practitioners can publish the results of their research or express their views about how agricultural and rural space should be managed.

The interdisciplinary nature of this scientific journal is confirmed by its current issue, in which results of field, laboratory and review research are presented.

In the first article calculation of basic physical principles of laser scanning of water objects are described and results of optical power calculations made during scanning of these objects as well as a calculation formula of reflected optical power for specular reflective objects are proposed.

The authors of the next paper, in which development of water supply networks and sewage systems in rural areas of Małopolskie and Podkarpackie Voivodeships is discussed, point out that because water supply networks were not built together with wastewater systems, there are substantial disproportions between water supply and sewage treatment and discharge.

The analysis of the architecture designed during the Second World War, carried out on the example of the Fish Hatchery Centre in Łopuszna, confirms that Polish architects, though unable to express themselves freely in their works at that time, used every opportunity to make valuable architecture, faithful to Polish traditions.

In a study on using high resolution satellite images to determine the area of felling forests a hybrid classification method, based on the determination of the optimal number of classes, has been proposed.

In another article, apart from the most frequently used fossil fuels and energy generated by thermal power stations, alternative methods of heating and air-conditioning of buildings in mountain areas were suggested, namely heat pumps and boreholes heat exchangers.

The analysis of history, current condition and prospects of oil and gas industry in the Carpathian areas of Poland shows that after the industry dynamic development at the turn of 19th and 20th centuries there was a period of regression, caused by the exhaustion of old deposits and lack of discovery of the new ones. Development prospects are related to identification of the Carpathian orogen complexes and the Carpathian Foredeep, as well as to improvement of exploration and extraction methods of the so-called unconventional deposits of hydrocarbons.

The analysis of Polish and foreign literature and available statistical data, carried out in the last paper, confirmed that implementation of the EU climate policy will lead to considerable increase of uncertainty in the strategic sectors of the Polish labour market and economy.

As a dean of the Faculty of Environmental Engineering and Land Surveying of The University of Agriculture in Krakow I express my satisfaction with the fact that already the seventh issue of *Geomatics, Landmanagement and Landscape* is published and I strongly support genuine efforts of its editorial team to constantly raise competence level of the publications. These efforts have been successful, which in current issue is confirmed, among other things, by the articles of foreign authors and researchers from other Polish universities.

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