Agnieszka Bieda, Ryszard Hycner: **Administrative Legal Borders Run along Rivers** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

Borders of country administrative divisions are created on the basis of cadastral boundaries in a hierarchic way. Real estate boundaries if they have not been updated, are only boundaries according to factual status in the field. It particularly concerns administrative boundaries run along rivers. One tends to present in cadastre legal boundaries, nowadays. It is especially difficult in the case of administrative borders, which have been run along natural stream waters. The changeable nature of rivers causes that boundaries, determined many years ago, may not be up-to-date. Thus, inserted in protocols of boundary records, stating that boundaries run along with the medium of a river bed, can somebody mislead. Therefore, one can see the necessity of updating databases of boundaries, which should be done during an administrative procedure. Its result will be a change of shape of boundaries, which after an ultimate decision will become legal boundaries. These boundaries after accepting them in the Ordinance of the Cabinet can be taken as administrative borders.

Keywords: administrative border, legal boundary, river bed

Tadeusz Gołda: **The Increase of Organic Carbon and Total Nitrogen Accumulation under Pine Tree Stands in the Areas Affected by the Exploitation of Sands after Forest Land Reclamation** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

This paper presents the results of the analysing the content of organic carbon and total nitrogen in the accumulation levels under the pine tree stands introduced in the framework of the reclamation of post-sand pits. The dynamics of the growth, depending on the age of the trees within the periods of 10–40 years, and the obtained results indicate a slow increase of the content of these basic bio-elements; caused by low initial fertility of the bedrock.

Keywords: total nitrogen, organic carbon, reclamation

Paweł Hanus: **Estimation of Parameters of Statistical Models Used in Real Estate Cadastre** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

This article presents the problem of recording spatial information regarding the location of the cadastral parcel boundary markers and its surface area in the real estate cadastre. The article also presents an estimation of statistical models that can be used in the cadastre.

The conditions for the surface of the record parcel presented in this paper allow for an assessment of the reliability of the plot surface area. The obtained results can be applied both in land and buildings register as an attribute of a record parcel, as well as in the process of property valuation.

Keywords: real estate cadastre, estimation of statistical models, reliability of the plot surface area

Justyna Kobylarczyk: **Small Urban Centres in the Context of Sustainable Development** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

Problems related to sustainable development concern a number of scientific disciplines, including architecture and urbanism which seek ecological solutions. On account of the development of civilization, we can observe numerous achievements in the field of science and technology on one hand. On the other hand, this development leads to the intensifying degradation of the natural environment, the destruction and reduction of biologically active areas, increasing air, water and soil pollution, rising traffic intensity and noise level etc.

These serious problems have been piling up for years in spite of all the efforts and expenditures. With a view to the deteriorating living conditions and quality of the environment, the European Urbanism Council issued the New Athens Charter in 2003. This document opposes unfavourable social, political, economic and technological changes as well as those which take place in the natural and urban environment. A new outlook on the dwelling environment brings us closer to the concept of an ideal city – the 21st-century city dominated by the need to implement the principles of sustainable development; a housing environment which satisfies human needs without destroying Nature.

This paper presents the results of research carried out in the central zones of small towns in the Province of Podkarpacie, located in southeastern Poland. To a certain extent, the selected towns realize the principles of sustainable development – among

other aspects, they support a healthy housing environment, facilitate contact with green spaces as well as meet the requirements of access to primary services and cultural goods.

Keywords: quality of housing environment, ecology, sustainable development, sustainable design

Jadwiga Konieczna, Agnieszka Trystuła: **Application of Cadastral Data in the Land Acquisition Process for Flood Control Investments** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

Cadastre is a basic land information system based on registered plots and containing three basic elements making a foundation of proper land administration in every state: ownership, value and method of use. Modern cadastre serves the needs of the owner and society as regards to spatial and economic planning, establishing tax and benefits, public statistics and designation of real estate properties in land and mortgage registers.

On July 2010, the Act on Specific Principles of Preparing Investments concerning Flood Protection Structures (e.g. bypass channels, impounding reservoirs and flood banks) was passed in Poland. This undertaking is one of many measures aimed at preventing tragic results of floods, which have been recently affecting Poland increasingly often. The effective Act simplifies the expropriation procedure related to real estate proprieties, e.g. for the construction of flood banks. The investment can be commenced immediately after a decision approving its implementation is issued.

The aim of the study is to present the important role of the cadastre in the process of land acquisition for hydro-technical investments, mainly at the stage of preparing a decision approving the implementation of an investment concerning flood protection structures.

Keywords: cadastre, flood protection structures

Stanisław Kowalik, Jerzy Wójcik: **The Content of the Forms of Calcium and Sulphur in the Spoil Tip of Initial Soil in the Sulphur Mine "Machów" after Many Years of Its Agricultural and Forestry Land Use** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

This paper contains the results of the studies on the formation of the content of selected forms of calcium and sulphur in the grounds of the rubble heap "Machów" managed by forestry

and agriculturally managed, after about 30 years of reclamation measures. Before the reclamation the grounds forming the outer rubble heap of the Sulphur Mine "Machów" were characterized by high content of calcium and sulphur – components of antagonist properties in terms of soil chemical properties, especially the reaction. Thirty years of management as forest or agricultural land caused a significant decrease in the content of different forms of calcium and sulphur only near the surface, in the case of agricultural management up to 20 cm, depth and forest management – 30 cm. The content of calcium, especially $CaCO_3$, despite a small decrease compared to the initial state, is still in the class of optimal contents, due to the structure-forming and reaction stabilizing impact and the degree of sorption complex saturation with alkalis. Despite still a high content of sulphur, also in the surface horizon, molar concentration of calcium in the ground is many times higher, which, in a long time perspective, guarantees the stability of reaction and other chemical properties.

Keywords: heap, reclamation, calcium, sulphur

Andrzej Kwinta: **Accuracy of Land Parcel Area Measurement** • Geomatics and Environmental Engineering 2012, Vol. 6, No. 2

In connection with direct subsidies to agriculture in European Union, each year hundreds of thousands of measurements of crops and allotments are performed. Area measurements are performed directly on site using geodetic or aerial photogrammetry methods. It is widely used for the control of the hand (navigation) satellite receivers. The receiver has recorded a trace of movement along the land. This measurement method is quick and not expensive. Comparison of results of measurements made in this type of technology with the allowable tolerance of an area shows that the theoretically obtained accuracy is sufficient. In real measurements a main source of error is improper identification of crops borders which – in many cases – are ambiguous.

Keywords: accuracy of measurement, area measurement, satellite technology