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BROWNFIELDS: A GEOGRAPHICAL PERSPECTIVE

(Editorial for Special Issue)

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The issues of remediation, regeneration and redevelopment of underused, abandoned, derelict and often contaminated lands and premises (so-called "brownfields") have recently become one of the greatest challenges for municipal planners and developers. Brownfields are results of economic restructuring processes in many countries; they are perceived as potential hazards to human health and the environment, burdens degrading the value of surrounding properties, barriers to local development and contributors to urban sprawl, grounds for neighbourhood crime and other illegal activities, etc. (see e.g. Greenberg et al., 2000; Susilawati, Kelsey, 2012).

The regeneration of brownfields has become more common during the last two decades since vacant developable land (or "greenfields") is less available, more expensive and more protected in densely populated areas and as a result of emerging policies, economic instruments, and management tools supporting the regeneration processes. The increasing number of projects and research platforms, which are supported by the European Commission or by national authorities, demonstrates the increasing interest of policy makers, too. On the other hand, as the global economic recession (or at least stagnation) proceeds, investments fall, many industries disappear or are moved to countries with lower labour costs – new brownfields emerge and redevelopment is still constrained by many barriers at economic, legal, political, social and technological levels.

The regeneration of brownfields is a complex and multidimensional problem that requires further interdisciplinary research. Such research should involve a variety of disciplines, such as technical sciences, environmental science, human and physical geography, economics, management and marketing, political science, sociology, law, etc. It should apply integrated approaches to create a vision of change across different stakeholder groups (politicians, developers, local communities, NGOs, researchers, experts, etc.) as well as across departmental and administrative boundaries, which constitute the scope of landscape planning and decision making to manage the required redevelopment processes as cost effective, profitable and economically, environmentally and socially sustainable.

The aim of this special issue of Moravian Geographical Reports is to extend the knowledge base about the nature, scale and dynamics of brownfields evolution and to provide theoretical and methodological tools for the identification of drivers of and barriers to the brownfield regeneration process. The emphasis is placed on analyzing and conceptualizing brownfields from the geographical (or spatial) perspective. Brownfields do not exist by themselves; they are located and rooted in a certain space, which exhibits hierarchical and functional structure. The geographical environment and driving forces acting within it have caused the formation of brownfields, and at the same time, the actual existence of brownfields affects the environment in many ways. With its integrative view of the world, geography can provide a framework for conceptualizing brownfields as products of the interrelationships between places and social and ecological processes (Bjelland, 2002).

Moreover, Geographic Information Systems (GIS), as an integral part of contemporary geography, can serve as a key tool for brownfields management (mapping, inventorying), control and decision support (site assessment, classification, and prioritization), and marketing (promoting revitalized sites to potential businesses – see e.g. Thomas, 2002 or Chrysochoou et al., 2012). Spatial analytical methods provided by GIS (e.g. hot spot analysis, neighbourhood-scale analysis, dispersion modelling, overlay analysis or advanced proximity analysis) have the potential to explore spatial effects of investments (how have the policies and regeneration processes affected their neighbourhoods in the sense of changing housing market conditions, local economic development, population growth, etc.) (Leigh and Coffin, 2005). They are useful for detecting evidence of environmental injustice (spatial relationship between the location of environmentally degraded brownfields and socio-demographic and health indicators of surrounding communities) (Maantay, 2002), assessing a realizable potential of brownfield sites for the development of renewable energies (Adelaja et al., 2010; Fyodorova, 2013) or to streamline the planning and decision-making process through wider public involvement (so-called public participation GIS) (Boot et al., 2001).

The reason why spatial analyses have not been applied in brownfield studies more frequently to date is the problem of availability and comparability of the objective data (official statistics, databases and registers of brownfields). Mapping and inventorying of brownfields is not centrally organized in many countries (Oliver et al., 2005). Detailed inventories (with specific location information, GIS layers, etc.) are unavailable or inconsistent (as different regional or local authorities use different criteria and methodologies); and registers owned by private companies (or consortia of owners) are often protected or provided only with limited descriptive information without the possibility of publication.

The papers presented in this special issue have benefited from utilizing detailed brownfields data, which might be used for spatial analyses.

In the first paper by Frantál et al., the authors present an introductory review of the academic literature, discussing the development of the brownfield concept, and putting the problem of brownfields regeneration into a spatial context. Then they attempt to verify empirically (analyzing data from the South Moravian Region, Czech Republic) which location and site-specific factors (e.g. peripherality of location, transport links, local economic potential, infrastructure, level of contamination, etc.) have a decisive influence on the successful regeneration of brownfields.

In the second paper by Krzysztofik et al., the authors (using data from the city of Sosnowiec, Poland) propose an individual typology for "functionally derelict areas", which dwells on a spatial and dynamic view of land use evolution (from the original, through transitional stages to the present state), reflecting the variability of land functions in time and space, as well as the specifics of local conditions.

The third paper by Novosák et al. focuses on the Ostrava metropolitan area, an area whose historical development was based typically on underground coal mining and the steel industry. The massive decline of these industries (ongoing from the 1990s) resulted in a large number of brownfields in the area. The paper attempts to explore and verify statistically significant differences in the spatial location and selected attributes of brownfields and redeveloped sites, and to identify basic types of brownfields in the model area.

The fourth paper by Skála et al. gives attention to post-agricultural brownfields, which are typical phenomena in post-socialist countries (as relicts of the transformation of the previous large-scale, centrally-planned agricultural sector). This type of properties that are specific in their spatial distribution, extent and character, surpasses the experiences of the EU15 countries or USA, which have longstanding practice in the redevelopment of primarily post-industrial and urban brownfields.

The final paper by Sun and Jones comes from the USA. Although the geographical scope of the MGR journal is intentionally limited to Europe, we decided to make an exception and to include this paper for the following reasons: the USA has already long-term research and practical experience with the regeneration of brownfields, and the paper (exploring spatial patterns and linkages between brownfield redevelopment projects and residential property values and neighbourhood demographic changes in Milwaukee County) presents a methodology (utilizing GIS), which could be applied in European conditions as well.

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