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Wolfgang Fischer (Editors)

Post-Mining Regions in Central Europe

Problems, Potentials, Possibilities



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Preface

Structural change in mining districts is a complex process, challenging cities, regions and governments all over the world. It comprises economic, social, ecological, and cultural changes. This volume deals with such regions in Central Europe.

In Western Europe, the subject has been a concern of political discussion and scientific reflection for some 50 years. The debate has mainly focused on major coal and steel regions like North-East England and Wales (Great Britain), Wallonia and Limburg (Belgium), Nord-Pas-de-Calais and Lorraine (France), Ruhr and Saar (Germany), and Asturias (Spain). In the affected areas the end of mining has provoked the overall decline of industry. The impacts have been far reaching, bringing economic, social, and ecological crisis to vast regions. Overcoming the shock has proved a protracted and painful process. Given the economic and political importance of the regions mentioned, regeneration has been a task of "national" importance, challenging governments, trade unions and big enterprises. Smaller mining regions have rarely attracted such attention, though the effects of decline have been no less drastic there.

In the former communist countries of Central and Eastern Europe, regime change in 1989/90 brought a radical turning point. Many old industries had survived till then in the autarkic economies of these states. When the system collapsed, many industries faced ruin and cities and regions were plunged into crisis. In Eastern European countries, too, certain former flagship regions of the coal and steel industry attracted most attention: Upper Silesia (Poland), Ostrava-Karvina Region (Czech Republic), Valea Jiului (Romania), Donezkyj Bassejn (Ukraine). Furthermore, the lignite industry in the Leipzig-Halle and Lusatian Districts (Eastern Germany) as well in the Bohemian Basin (Czech Republic) suffered rapid decline. The impacts resembled those in Western countries. But there was an important difference: the old industrial regions in the East had to master change in a society in transition with a weak overall economy and less continuity. Today we can look back on 20 years of experience in these countries.

How relevant is this well-known topic for the early 21st century? Does it make sense to address it at a time when the discussion about the new economy is at its peak? Why do we not use the concepts from the 1980s and 90s to solve recent problems? Or is there reason to call attention to unsolved problems in an atmosphere of political indifference?

This volume seeks answers to these questions. It focuses on the so-called "potentials" of mining regions. These potentials can be defined as legacies of mining which can be exploited and valorised even after mineral extraction has ceased. There are two categories of potential, natural and cultural. Natural potentials are post-mining landscapes, renewable energies and thermal water. Cultural potentials are artificial relicts such as technical structures, buildings and infrastructures, as well as the traditions of miners. It makes sense to distinguish between them because the two categories are valorised differently.

What we describe as potentials differs from "heritage". The latter is seen mainly in the context of "preservation". Of course, the development of post-mining potentials includes heritage aspects such as the use of old mining building as museums. But our view is wider. "Potential" has a progressive connotation. It can be associated with concepts like "innovation" and "modernization". The concept of potential gives a strategic touch to economic restructuring. Moreover, the "potential approach" can easily combine with urban and regional regeneration issues. It fits in with development trends like resource economy, climate adaptation, energy transition, and sustainable development. The concept can also extend to regional identity and tradition. In this sense it can play a progressive role in the communication of political stakeholders.

In contrast to most scientific ventures to date, this volume addresses the problems of mining regions with small and medium-sized towns, mostly situated at the outer and inner peripheries of countries. This spatial category is often limited in general functions. Such areas are sparsely endowed with infrastructure. Particularly lacking are high-quality education facilities like universities and research centres. Small and medium-sized towns are becoming less important as sites for business and industry in many countries. And local authorities generally have little scope for action. Small and medium sized towns have little administrative capacity for strategy building, planning and control. Altogether, politics pays little heed to this type of mining region. There is all the more need to draw greater political attention to them.

With this in mind, the book has three main aims: *first* to describe the situation of post-mining regions with small and medium-sized towns in Central Europe at the beginning of the 21st century; *second* to introduce the "potentials" concept into the scientific discussion on urban and regional regeneration; and third to underline the need for political action by the European Union and national governments to promote change in former mining regions.

The results presented here were obtained in the framework of the project ReSource – Utilisation of post-mining potentials for sustainable re-development in Central European mining cities and regions. It was co-funded by the European Regional Development Fund (ERDF) in accordance with the EU Objective 3 "Territorial cooperation", programme Central Europe. From 2009 to 2012 ten partners worked together to promote urban and regional development in 6 mining regions: the Steirische Eisenstraße (Styrian Iron Route) in Austria, the Czech lignite region Sokolov-východ, the Mansfeld-Südharz copper region and the Zwickau-Oelsnitz coal region in Germany, the brown coal region of Salgótarján in Hungary, and the Zasavje coal

region in Slovenia. Half of these regions are in the post-mining phase. In Styria, Zasavje and Sokolov is mining continuing with longer-term prospects. Nevertheless, in these regions, too, the importance of mining is declining and the economy is in transition. All are affected by change, all are in search of perspectives for development in the post-mining period, and all have a number of potentials they can exploit.

The regions have been accompanied in their efforts by academic partners, both universities and scientific institutes: The Leibniz Institute of Ecological Urban and Regional Development (IOER) Dresden, the Urban Planning Institute of the Republic of Slovenia (UPIRS) Ljubljana, the Institute of Geography and Regional Science of the Karl Franzens University (KFU) Graz, the Institute of Applied and Landscape Ecology of the Mendel University (MENDELU) Brno, the Institute of Geography and Earth Sciences of the Eötvös Loránd University (ELTE) Budapest. An additional partner is the Institute of Geography and Regional Development of the University of Wrocław. Though no Polish region was involved in the ReSource project, Wrocław University has contributed a study of the former Wałbrzych coal region. ReSource symposia in Großräschen/Germany (2009), Leipzig/Germany (2010), Leoben/Austria (2011), and Sokolov/Czech Republic (2011) provided additional expertise on post-mining development from other European and world regions. Discussions among scholars from different theoretical backgrounds with far-reaching experience in structural change proved extremely fruitful. On the one hand, they had an intensive methodological component. In order to compare situations, problems and strategies in the regions under investigation, appropriate algorithms had to be created for common use by all partners and in all regions. Such products of discussion and analysis as the "Road Map", the "Regional Profiles", and the "Strengths-Weaknesses-Opportunities-Threats (SWOT) Reports" have been an important basis for this publication¹. On the other hand, there was a discussion on the theoretical conceptualisation of potentials in the post-mining development, for instance transition, innovation and actor theories. All participants in these discussions can be found as authors in this volume.

A great deal of practical knowledge was generated in discussions with practitioners from the field in ReSource. They included the German county Zwickau as lead partner, the International Building Exhibition Fürst-Pückler-Land (Germany), the Educational Institution of the Saxony-Anhalt Employers' Association (Germany), the »Styrian Iron Route« Regional Association (Austria), the Association of Communes Sokolov-východ (Czech Republic), the Local Self-Government of the Town of Salgótarján (Hungary), and the Regional Development Centre Zasavje (Slovenia). All discussion in project workshops, meetings, and face to face with representatives proved useful.

Part one provides an overview of the state of the art in post-mining development in Europe. It covers and seeks to systematize knowledge in the field since the 1970s. It also aims to place

1 Project reports are available here: <http://www.resource-ce.eu/en/project-results/scientific-support/>

the post-mining discussion in the context of the "potentials approach", examining the notion of post-mining potentials on the basis of the knowledge available on change in mining regions. The first part concludes with a series of questions on the role of post-mining potentials in developing former mining regions. These questions provide orientation for the following parts.

Part two introduces the regions under study. A brief overview of the geographical location and current development trends in all regions is followed by an examination of each in turn. The demographic, economic and employment situations in each region are analysed. The history and mining legacy of each is also described. The main focus is on the factual and institutional aspects of change. Governance constellations, development strategies and actors in the process are characterized. The analysis of each region ends with a presentation of post-mining potentials and their embedding in recent development strategies.

The *third part* discusses the state of the art in the use of Central European post-mining potentials in the form of a "good practice analysis". 50 projects and 23 centres of knowledge were analyzed on the basis of pre-designed and completed forms. Evaluation methods were tailor-made. The analysis establishes a distinction between the efficient, long-running projects for the use of cultural potentials (e.g. mining museums, tourist paths, mining-related events) and very recent, financially demanding, (mostly pilot) projects for using natural potentials, such as biomass production on degraded land or geothermal energy for district heating. Where locations accommodate multiple uses and projects can be considered comprehensive, an integrative approach is introduced in addition to cultural and natural potentials. An overview of centres of knowledge shows that universities and research centres have successfully adapted to the needs of post-mining regions, offering them knowledge and experience for the whole range of purposes, e.g. geotechnical solutions, land reclamation and recultivation projects, social transformation, etc.

Part four provides a scientific debate on post-mining potentials. The authors of the six contributions address the topic in specific ways, considering concrete empirical knowledge from different theoretical perspectives. Antonín Vaishar, Zdeňka Lipovská and Milada Šťastná (Brno) see small towns as functional centres in mining regions undergoing a radical change. Jörn Harfst, Peter Wirth and Gerd Lintz (Dresden) discuss the use of old mining potentials as a problem of regional capacity building. Sylwia Dołzbłasz (Wrocław) focuses on local actors in the restructuring of post-mining municipalities. The role of youth participation in the development of former mining regions is highlighted in the contribution by Naja Marot and Barbara Černič Mali (Ljubljana). The strategic destination management in an Alpine mining region is the focus adopted by Judith Pizzera and David Osebik (Graz), who explain extreme and endurance sport as an opportunity for image transformation. And the role of natural protection and ecotourism in the development of a former mining region is analysed by Gergely Horváth and Gábor Csüllög (Budapest).

In the *final part* we return to overall reflection on the prospects and possibilities of post-mining regions in Europe. The discussion draws both on empirical research in the regions and general considerations about post-mining development, offering recommendations for policy at the European, national, regional and local levels. The message is that the integration of the natural and cultural potentials of mining in the urban and regional development strategies of former mining regions can improve the outcomes of regeneration – even during outphasing. As we see, the potentials in European mining regions differ strongly depending on the type, duration, and spatial impact of mineral extraction. There is accordingly no one-fits-all solution. But certain development axes can be considered essential.

Last but not least, the editors would like to express their appreciation to Katrin Schießl, Clemens Herrmann and everyone involved at the oekom Verlag for their support in the decisive phase of this publication. We also thank Rhodes Barrett (Berlin) for proofreading all contributions with such care, keeping in mind that none of the authors is a native speaker of English.

It is the hope of the editors that this publication will encourage scientific investigation in post-mining regions, help improve the management of mining and post-mining regions in Europe, and draw political attention to the needs of areas affected by mining.

Peter Wirth, Barbara Černič Mali and Wolfgang Fischer

Part I: Overview

Problems and Potentials of Post-Mining Regions

Introduction

Mining industries have played a crucial part in the European history, being an important factor of economic and social development over the centuries. Without the extraction of raw materials such as copper, iron, silver, salt and coal, the development path of the continent would look distinctly different. Central Europe has in many ways been at the heart of these developments. Starting in the 19th century, the extraction of coal and lignite provided the basis for the industrialisation of many European regions. To strengthen heavy industry after World War II, mining in eastern European countries was intensively developed by opening new mines, while uranium mining became increasingly important from the 1950s with the development of nuclear energy production and nuclear arms.

Mining is a dynamic industry, with some resources being mined for centuries until reserves are exhausted or technical and market conditions change, as in the European mining industry since the 1960s and in the former communist countries of Central and Eastern Europe after 1990. In nearly all known cases, the end of mineral exploitation caused a number of serious problems, the "unavoidable socio-economic drama of pit closure" (Baeten et al. 1999, 250). The problems are very similar in all mining regions (Wirth & Lintz 2007) and research in the ReSource project underlines this diagnosis. Firstly, mining has almost everywhere caused considerable environmental degradation. This encompasses abandoned surface mines, underground galleries, lowered ground water levels, and contaminated sites in mining and related industries such as energy, iron and steel, and chemicals. Affected cities are usually burdened by disused mining facilities, miners' settlements, and often overdimensioned and dilapidated infrastructures. Secondly, mining had in many cases been the dominant industrial sector. The decline of mining plunges the entire economic foundations of a region into crisis. It often proves difficult to attract new industry and business, and alternatives such as tourism are usually unable to produce as much prosperity as mining. This leads to a third set of problems: high unemployment with all the associated social impacts. Mining skills are mostly incompatible with the requirements of modern industry. Bad economic conditions often lead to outmigra-

tion. The final result is usually a loss of human resources, spending power, and taxable capacity in the region (Müller et al. 2005). These conditions put pressure not only on local authorities but also on national governments and the European Union to develop rehabilitation and development strategies. In sum, we can say that the problem is a complex one that often debilitates the actors involved.

Despite the unpromising situation, it is not acceptable in densely populated countries and regions to leave the affected areas to fend for themselves. Furthermore, extensive experience shows that transforming mining regions is not a utopian project. One of the best-known comprehensive regional approaches is the International Building Exhibition (IBA) Emscher Park in Germany, which took place in the Ruhr District from 1989 to 1999. The ecological and cultural restructuring of an old industrial region was seen in this IBA as a necessary basis for comprehensive renewal. A total of 89 projects were realised with extensive state support; for instance, slag heaps were integrated into green landscape concepts and old mining facilities adapted to accommodate education and innovative services (e.g. Kilper & Wood 1995, Eckart et al. 2003).

On the basis of such experience, this volume describes the natural and cultural potentials for the post-mining development of regions and cities, investigating the integration of these potentials in holistic urban and regional development concepts. We are concerned with the artefacts (buildings, infrastructure, landscape sceneries etc.) and traditions left behind by the mining past which can be valorised to promote post-mining development. It is of crucial importance for the development of former mining cities and regions:

— to identify these potentials and

— to embed them in overall development strategies (e.g. masterplans, regeneration plans).

The focus is on regions with small and medium sized towns, where local authorities have little steering capacity and which mostly escape the attention of state government.

Part one of the volume addresses issues of fundamental importance for the entire study. The following section gives an overview of the spatial dimension of mining regions in Europe. It is argued that there is still urgent need to include mining regions in the debate on regional regeneration and development, also at the beginning of the 21st century. Section three provides a literature analysis, dealing with the discussion on structural change in mining regions over recent decades, describing five main fields of research. In section four the potentials of mining are explained in detail. A distinction is drawn between natural potentials (renewable energies, mining landscapes, etc.) and cultural potentials (buildings, infrastructures, traditions, etc.), because the two categories require different valorisation approaches. The concluding section considers the perspectives for research on the potentials of mining regions, also providing orientation for the present publication.

Mining Regions in Europe at the Beginning of the 21st Century

In the context of spatial development in Europe, mining regions have been a well-aired and critical subject. In Western Europe, where the decline of coal and steel regions started 50 years ago, structural change is far from over. And in the former communist states of Central and Eastern Europe no mining region has yet fully overcome the social, economic and ecological impacts of mineral extraction.

A look at the mining of solid energy feedstock (hard coal, brown coal/lignite and uranium) in Europe, which gives a good idea of the spatial dimensions of mining in Europe today, shows the size of the problem. In 2005 there were 226 mining regions, of which 54% were still in operation (Lintz & Wirth 2009). In 46% mining activities had ceased entirely, generally after 1990 (Tab. 1).

Tab. 1: Mining areas in Europe 2005 (Lintz & Wirth 2009)

Raw Material Number of areas	Hard coal	Brown coal/lignite	Uranium	Total
in operation	30	84	7	121
closed	26	23	56	105
Total	56	107	63	226

The 226 mining regions include some 1,000 mines. In Western Europe mining is retreating: in France, for instance, no solid energy feedstock is now mined at all. In Central as well in South Eastern Europe, by contrast, the density of active mining districts is still high. This means that many European mining regions are undergoing a difficult process of restructuring, mining activities continuing in some and having ceased in others. It is therefore important not to lose sight of the problems facing such regions, to support them politically, and to focus research on their problems, potentials and perspectives.

Discussion of Change in Mining Regions

The literature broadly discusses structural change in former mining regions. Many empirical studies examine the problems and the solutions adopted when mining activities ceased. Often the academic debate on change in mining regions is part of a broader discussion on old industrial regions (e.g. Eckart et al. 2003). In former communist countries, structural change is also associated with societal transition processes since regime change in 1989/90 (Steiner 2003). A closer look at the "structural change literature" shows that some sections of this literature relate more closely to the discussion in this book.

One main focus is on transformation processes in former mining regions. Descriptive and explanatory studies of post-mining areas play an important role in economics, political science, and human geography. They deal with political, cultural, social, and economic change in spatial entities such as regions and cities. The literature offers both a Western and an Eastern European perspective. In Western Europe, restructuring in mining regions, mainly of the coal and steel industry, occurred earlier and was embedded in "old" market economies. Change was shaped by substantial political trade-offs and long-term phasing-out scenarios. A great deal of experience has been gathered in many countries with an emphasis on the coal and steel industry. The British literature concentrates on the English Midlands (Cloke et al. 1996), the English Northeast (Hudson 2005) and Wales (Jones & Munday 2001). The debate in the UK is mainly on the role of central government in regeneration, the relationship between the government and local actors, and appraisal of development strategies. The German discussion focuses strongly on the Ruhr District, originally the largest old industrial area in Europe (Hassink 1993; Häußermann & Siebel 1994; Ache 2000; Wissen 2001). It mainly addresses innovation policy and how to overcome paternalistic industrial structures.

Though mining areas in Austria are much smaller than in Britain and Germany, the problems of change are very similar. Kaufmann & Tödtling (2000) highlight the importance of regional innovation systems, while Zimmermann et al. (2007) combine innovation with co-operation and identity concepts. The Belgian experience sees change in the Limburg region in the context of multi-level governance processes (e.g. Baeten et al. 1999), and Jansen-Verbeke (1999) describes the same region from the perspective of policy change. In Asturias (Spain) the huge problems faced in compensating the decline of the coal industry are discussed against the background of economic alternatives (Voth 2004). Dale (2002) explains change in four Norwegian mining sites from an institutionalist perspective. All in all, the academic discussion stresses that old industrial regions in Western Europe have to deal with "low adaptability, inflexible patterns of behaviour and insufficient ways of mastering change" (Steiner 2003). Nevertheless, there are some examples of progressive frame change (Shaw 2002).

The former Eastern Bloc countries experienced a period of radical transformation after the political upheaval of 1989 and 1990. The tempo of change was extremely high and existing economic structures were unable to cope with a free market economy in a globalised world. Most Central European mining regions therefore faced the double dilemma of having to deal with both an overall, rapid transition to a free market economy and the redevelopment of old industrial and mining regions to make their products competitive under world market conditions. Although these countries have in the course of 20 years established the essential institutions of a market economy with the corresponding legal systems, there are still differences between West and East in standards of living, productivity, and competitiveness (Steiner 2003). Investigation of structural change in Central and Eastern European mining regions plays a major role in the debate on economic transition (Gorzela 1998; Gorzela 2002; Müller et al.

2005; Rumpel & Waack 2004; Geißler 2005; Klusáček 2005). Some authors also compare the development of Western *and* Eastern market economies (Eckart et al. 2003; Steiner 2003). Structural change in both Western and Eastern Europe is addressed by the greater part of the "system transformation" literature. Part II of this volume provides a series of descriptions of regional transformation processes. And under "specific aspects" (part IV) Sylwia Dołzbłasz, Antonín Vaishar, Milada Št'astná, and Zdeňka Lipovská present us with examples.

How post-mining potentials are used is essentially a question of political strategy building. Whilst a great deal of knowledge is available about the general transformation process and policy making in European countries, the interplay of actors, strategy building, and institutional framework conditions involved in internal rehabilitation and development processes in mining regions have so far been given less attention. This *second research focus* in the structural change debate lies in planning, regional development, and regional policy literature (e.g. Eckart et al. 2003; Rumpel & Waack 2004; Jezek 2007). The authors deal with urban and regional perspectives, possible futures, and alternative paths for former mining regions. The approach is closely associated with the strategic planning debate (Jansen-Verbeke 1999; Zimmermann et al. 2007). Last but not least, we find a bridge to sustainable development (e.g. McManus 2008). In consequence, each concept for managing change in mining regions has to consider both ecological and socio-economic aspects. Ideally, strategies for reorganising mining regions combine ecological rehabilitation *and* new economic development (Wirth & Lintz 2006; Harfst & Wirth 2011). This section can be headed "strategy making". It is mainly reflected in this volume by Judith Pizzera and David Osebik as well by Jörn Harfst, Peter Wirth and Gerd Lintz in part IV, and in the recommendations (part V).

A *third approach* deals with concepts for preserving and developing the cultural heritage of mining regions. Heritage can be seen as a resource in several respects. "... it is an economic resource ... to promote tourism, economic development and rural and urban regeneration. But heritage also helps define the meanings of culture and power and is a political resource." (Graham et al. 2000, 17). Mining and industrial heritage have become important elements of cultural heritage since the 1980s. As a rule, there are strong links between mining heritage and cultural and tourism development in the regions and cities concerned (e.g. Jansen-Verbeke 1999; Jones & Munday 2001). Heritage approaches cover not only architectural and technical artefacts (like shaft frames, processing mills, and underground workings), but also identities, traditions, and cultural events (Smith 2003). Ultimately, mining landscapes often open underground geological formations to view and present morphological forms of interest for geotourism (Dowling & Newsome 2010; Timcak et al. 2011). This is why a great deal of scientific and practical literature deals with the subject in urban and regional development, culture, architecture, geography, preservation of monuments and nature conservation. But the most important driver for heritage development is definitely tourism (Graham et al. 2000; Jones & Flynn 2011). Mining sites can help people find meaning and identity in the industrial past, and visiting old industrial sites can be in the nature of a "pilgrimage"

(Gouthro & Palmer 2011). This section can be headed "heritage and tourism". It is the main focus of Gergely Horváth and Gábor Csüllög in part IV.

But critical papers emphasise that transforming a mining site into a heritage site is a fundamental change that requires not only political decisions and funding but also participation by the local population (Jones & Munday 2001). A *fourth approach* deals with this local participation. Such studies draw on discussions about collaborative planning (Healey 1997) and public participation (Kasemir et al. 1999, Wilcox 1994), as well as on recommendations and requirements laid down by international agreements and conventions like the Aarhus Convention on Access to Information and Participation in Decision-making (UNECE 1998), the Charter of European Cities towards Sustainability (Aalborg Charter 1994), and the White Paper on European Governance (EC 2001). Observation of participation processes in the Zasavje region (Slovenia) has shown that, while participation by local residents has in general been formally included in the regional development process, young people have been involved only less formally. In keeping with the principle of equality of opportunity for all local groups to collaborate in regional planning, youth has to be given adequate opportunity to take part. Furthermore, a future perspective is built into regional development; it is therefore extremely important to motivate and involve youth. Excluding young people from regional development processes can further diminish their identification with the region and exacerbate the brain drain among the young who see no perspective for themselves in the area. Experience in many post-mining regions has confirmed such a scenario. Under the heading "participation", Naja Marot and Barbara Černič Mali in part IV explore the extent to which Zasavje youth identify with earlier and projected regional development, and explore how to improve the involvement of the young.

A *fifth category* of research into change in mining regions examines the modernisation of cities, regions and landscapes after the cessation of mining. It draws on many disciplines, including policy research, the social sciences, economics, architecture, landscape architecture, and the arts. It addresses a new philosophy of state intervention (Wissen 2001) and a new type of creative and innovative projects (Häußermann & Siebel 1994). The approach was developed primarily in Germany in the framework of so-called "Internationale Bauausstellungen" (IBA, International Building Exhibitions). The new generation of building exhibitions are long-term, large-scale initiatives to inspire change in cities and regions through creative ideas (think tanks), impressive "symbolic" projects, and competitions for the best ideas and solutions (Ganser 2001). The IBA Emscher Park in the Ruhr District from 1989 to 1999 (Shaw 2002) and the IBA Fürst Pückler Land in Lusatia (Eastern Germany) from 2000 to 2010 (Kuhn 2010) were closely associated with post-mining development. In Europe this type of complex and comprehensive project is rare. Some resemblance is to be found in the British millennium initiative, funding about 220 projects throughout Britain with lottery money, among them many regeneration projects! The most popular has been the Eden Project in Cornwall, where a former kaolin pit provided the basis for a multiple greenhouse complex (Pearman 2009). These

approaches seek not only to promote structural change or to develop strategies. They include elements of all the approaches described above, introducing innovative and creative management and funding. They aim to make regions with a traditionally "black" profile attractive for new investment and to give them a new, positive image. Their goal is the complex modernisation of cities and regions. This often means non-innovative milieus have to be overcome (Häußermann & Siebel 1994). The category of "modernisation" is an element in most contributions to parts III and IV of this volume.

Research into change in mining regions concerned with *system transformation, strategy making, heritage and tourism, participation* and *modernisation* is of course never restricted to one and only one aspect. Many approaches combine the main categories. System transformation is often discussed in connection with strategy building (e.g. Dale 2002). Strategy debates are closely associated with modernisation (e.g. Zimmermann et al. 2007). There are also links between modernisation and heritage (Kirkwood 2001), etc. Many references in this chapter are accordingly cited in different contexts. On the other hand research on post-mining development is obviously interdisciplinary and intersectoral, drawing on different theories, methods, tools and approaches. It requires a wide range of actors to take joint action, exchange knowledge, and cooperate. Work in this field cannot be said to be either just beginning or reaching a conclusion. Of course a great deal of experience has been gathered with change since the 1960s. But many regions are in the throes of change, others have yet to begin, and under as yet unknown conditions. Research on post-mining phenomena is thus very much on the agenda and discussion on post-mining development is far from over. The next section considers the most important post-mining potentials in relation to urban and regional regeneration as a perspective for research.

Natural and Cultural Potentials of Mining

Mining is a drastic intervention in landscapes and regions. As a rule it causes changes in societal structures like employment and in the environment. Large-scale mining can destroy landscapes and traditional social structures and produce new ones. After decades or even centuries of mining, the face of nature and society has changed. Perception of post-mining landscapes varies and is often negative. But they can often be positively connotated, considered to have *potential*.

Since we are dealing with post-mining potentials, the term needs to be defined. Post-mining potentials are legacies, leavings, remains or residues of mining that can be used in a broad sense after the end of mineral exploitation for a number of purposes, ultimately for mastering structural change. They can vary greatly. We distinguish between "natural" and "cultural" potentials (see Fig. 1); other authors use similar terms, for instance Jolliffe & Conlin (2011, 244) who write about "natural and human-made attractions" in heritage tourism and Jones & Munday (2001, 585) who mention "natural and built resources".

Though all residues of mining are anthropogenic in nature – they all result from human activities – there is a difference. The first category covers changes in landscapes or their components (water, soil, flora, fauna, relief etc.). It includes ecological aspects, natural resources and natural heritage, namely *natural potentials*. The other category covers artificial products of mining: buildings and infrastructures. It also includes miner’s traditions, customs, and trades. It covers technical and architectural aspects, as well as cultural heritage: *cultural potentials*.

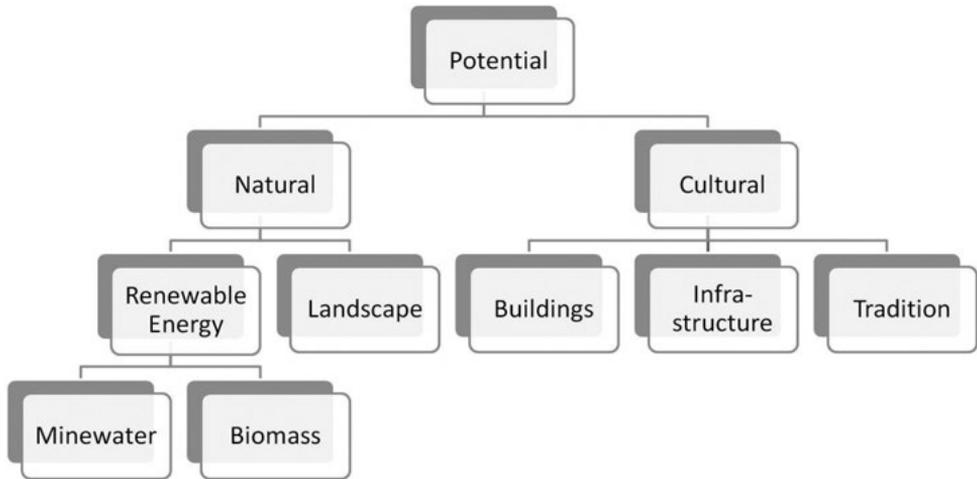


Fig. 1: System of potentials in post-mining regions

Natural Potentials

Under the heading of natural potentials the entire landscape can be seen as offering potential. As a rule, *post-mining landscapes* differ from traditional rural landscapes characterised by agriculture and forestry. Typical are heaps forming new hills and open pits forming new hollows. The importance of these morphological forms can differ from case to case. On the one hand they can be seen as dangerous if unstable or as hindrances to urban development. On the other they can lend the landscape a unique character much more interesting than before intervention. This can lead to new forms of land use, offer inspiration for the arts (Mas-Kit 2009). In Bottrop (Germany) the world-wide longest indoor ski run was erected on a coal slagheapⁱⁱ. In the Czech Republic, Poland, and Germany lake districts are being created by flooding open cast lignite mines, providing facilities for bathing, water sports, and shipping, and for general touristic activitiesⁱⁱⁱ (Fig. 2). Mining landscapes often form good terrain for hiking, cycling, other sports and event tourism. One example is the annual “Erzberg Rodeo” in Eisenerz (Austria) staged at an iron ore mine, which has become one of the most famous enduro sport events in the world (see the contribution by Pizzera & Osebik in part IV). The race

course in Most (North-Bohemian Basin, Czech Republic) was constructed completely on the site of a former lignite mine^{iv}. As mining usually opens up the earth in quarries, underground galleries etc., many mines can be counted as geo-heritage of particular scientific value. This also offers prospects for establishing open-air geological museums, as in Gánt or Tata in Hungary (see also the contribution by Horváth & Csüllög in part IV).



Fig. 2: In Lusatia (Germany) 21 former open cast pits from lignite mining will be flooded by 2017, forming the Lusatian Lake District (photo: Radke/LMBV)

Another, very specific natural potential of former mining regions is *renewable energy*. The interest in climate protection has made this an attractive option over the past decade. Mining can open the way to using different energy sources. The use of mine water to heating buildings is one innovation in post-mining development. Since relatively warm water is available in many deep mines, this could offer an alternative to fossil energy sources. A pilot project has been carried out in recent years in Heerlen, Netherlands. Warm and cold water from abandoned coal mines is used to heat and cool buildings in a large distribution network^v. Similar approaches are to be found in Germany (Fig. 3).

Another challenging approach is the production of biomass on mining land. Biomass, or biological material from living organisms (mainly wood in the ReSource project), is fast becoming an important energy source in Europe. In many rural areas it is already the basis for producing electricity and heat. In mining areas the use of biomass for energy is still at an early stage. Since food and energy production compete for traditional arable land, mining land could help reduce the pressure on agriculture if used for biomass production, particularly where contaminated and less fertile mining land cannot be used for food production. An experimental concept for renewable energies on mining land is the Energy Garden Project in Welzow,



Fig. 3: Mine water drilling for school heating in Bad Schlema/Germany (photo: Wirth)

Germany, a holistic approach that combines several regenerative energy products in one place, using an intelligent, carefully designed layout. Starting in 2003, a large-scale energy landscape with wind turbines, renewable raw materials, and solar panels was planned and implemented. Various cultivation methods for biomass production like short rotation forestry are among the projects being put to the practical test in Welzow^{vi}.

Mining activities have also produced some rare forms of natural potential. In Bad Bleiberg (Austria), for instance, thermal water from an old lead mine is used for therapeutic purposes. In 1950 an underground watercourse was cut by blasting in the mine. Water flooded the underground galleries, causing heavy losses. The blessing in disguise was that the spring had therapeutic qualities, allowing a spa to be developed after the end of mining. Today Bad Bleiberg is an outstanding spa destination. A special attraction there is the so called healing tunnel, a former mining gallery with a healthy underground climate. Tunnel therapy is indicated for people with respiratory disorders of any kind, for example bronchial asthma and chronic allergies^{vii}.

Last but not least, abandoned mining land can be seen as a resource or natural potential for urban and regional regeneration, depending on the demand for new development sites. Old mining towns were often characterized by a mixture of industrial and residential areas. In such cases abandoned mining land offers potential for improving the quality of life, providing space for green areas for recreation, sport and other leisure activities, and for service facilities. A large-scale natural protection project was started in the Lusatian Lake District in Eastern Germany^{viii}. In Wałbrzych (Poland) two shopping centres were built on the site of an old mine (see the contribution by Sylwia Dołbłasz in part IV).

Cultural Potentials

Culture is an output of a society. Grundmann (2006, 11) speaks of an expression of socialisation within the life of the community ("soziales Zusammenleben"). The mining community gives expression to its culture in specific social structures, a relatively good financial situation, a strong sense of togetherness, pride, and introverted behaviour. Miners' traditions are therefore very distinctive and alien, even mysterious to outsiders. To explore the world of mining and miners, their cultural heritage as manifested in the "artificial products of mining", whether material, like buildings and infrastructures, or immaterial, like miner's traditions, can therefore interest both miners and the general public.

One element of *cultural potentials* is *tradition*. It manifests itself, for example, in customs and observances (e.g. "Miners' Day") cultivated even long after the cessation of mining. Organisations such as folklore societies, local brass bands or traditional miners clubs play a very important role in preserving the cultural heritage (Fig. 4).



Fig. 4: Traditional miners' uniforms from the Zasavje region/Slovenia (photo: Rozina)

In active mining regions and towns membership of such clubs is a matter of course, and in post-mining regions traditions are mostly preserved by elderly former miners. Experience has shown how difficult it is to maintain interest in mining traditions among the young of the post-mining era. Success depends both on local initiative to uphold customs and on a positive response from society such as interest in the mysterious world of mining, not to mention economic support. Mining customs and celebrations play an important role in tourism strategy and development concepts for former mining regions.

A second element in cultural potential is *mining buildings* and *mining infrastructure*. Some such relics of mining activities have been revitalised as museums, for example the "Radwerk IV" in Vordernberg/Austria (Fig. 5). It goes without saying that personal enthusiasm rather than adequate funding contributed most to the success of this project, which is run by a group

of former miners and others interested in mining. The preservation of such buildings and infrastructure is an arduous and time-consuming task, more a hobby for ex-miner volunteers organised in associations like the “Friends of Radwerk IV in Vordernberg”, Styrian Iron Route, Austria^{ix}.



Fig. 5: Radwerk IV in Vordernberg, Styrian Iron Route/Austria: a type of furnace powered by water wheels
(Source: Friends of Radwerk IV in Vordernberg)

Though the cultural value of such artefacts is considered very high and irreplaceable, political stakeholders and public authorities often fail to provide sufficient support. The main problem is the lack of money for preservation. Without a degree of public financial support it is not possible to run museums, since admission fees usually cover only a fraction of the costs.

Success in this sense means preserving an outstanding mining structure as a local landmark. The number of visitors and the revenue from admission fees are definitely not the only factors justifying strong personal commitment. It is the willingness to preserve mining culture for posterity.

Not only the preservation of buildings themselves is important but also the way in which museums are installed in them. Modern and innovative presentation concepts with proactive elements are now essential in displaying mining legacies. Visitors arrive with widely ranging, highly individual expectations and demands. Incorporating single museums into a wider tourism marketing scheme, e.g. a “museum route”, will make them even more interesting for visitors.

In addition to mining museums, show mines also make a valuable contribution to preserving and presenting mining culture. They give profound insight into the arduous work done by miners and their social life. Supplementary attractions play an important role in increasing interest in mining museums for different generations. Bad Bleibergs’ Terra Mystica^x (Carinthia/Austria) e.g. offers interesting thematic corners and uses special sound effects and beaming techniques to fascinate visitors.

Research Perspectives and Questions

Although structural change in mining regions is a well-established topic, the academic investigation of post-mining potentials can make a valuable contribution to the discussion on post-mining cities and regions at the beginning of the 21st century. After outlining what this volume has to contribute to the debate, we go on to consider the prospects for future research into post-mining potentials and their role in urban and regional development. We keep to the five categories identified in the literature review above.

System transformation and post-mining potentials. In phases of structural change it is often difficult to attract outside investment. A bad investment climate may be caused by a number of factors such as the environmental damages, non-innovative milieus, and image factors. In such situations endogenous growth potentials, like human capital, education and economic incentives become important. Post-mining potentials can be seen as a stable element in transformation processes, since they both point back to the past and open windows to the future. Research can help clarify procedures for bringing human capital and post-mining potentials together.

Strategy building and post-mining potentials. Generating development strategies has become part and parcel of urban and regional development in recent decades. Such strategies have to cover many single factors: the environment, the economy, culture. They are needed to provide orientation and motivation in defining and implementing goals. Post-mining potentials are the connecting link between environmental and cultural rehabilitation on the one hand and economic development on the other. The role of research can be to investigate the importance of post-mining potentials in this context.

Heritage, tourism and post-mining potentials. In recent decades many post-mining locations have been upgraded as natural and cultural heritage sites. This has been due in particular to changing perceptions of the human heritage and to the UNESCO heritage movement. Although this has lent impetus to post-mining development, heritage sites are mostly seen as single examples of conserving and developing natural and cultural goods. Rarely is the sum of post-mining potentials in a region perceived as an ensemble. Exceptions are the "Montanregion Erzgebirge" in Germany (Albrecht 2006) and the "Styrian Iron Route" in Austria (see the contribution by Judith Pizzera and David Osebik in this volume). From a scientific point of view it is necessary to investigate the effects of heritage initiatives in large-scale post-mining landscapes on the regional economy, the labour market, identity, and public perception.

Participation and post-mining potentials. Rehabilitation is often an exclusive process integrating local and regional elites but negating the needs of the people living and working in the post-mining environment. This can lead to resignation, suboptimal solutions, conflicts, and – finally – the intensification of negative effects. Post-mining potentials could be a force for involving people in processes, inspiring new and better solutions, and interesting young people in participating in renewal and regeneration projects. Research can contribute to streng-

thening the role of participation by finding out more about the preferences, perceptions, and motivations of the local population.

Modernisation and post-mining potentials. We have described the challenges mining cities and regions face, e.g. environmental damage and economic decline. As we know, the ability of spatial entities to cope with external factors varies. Against this background, the use of post-mining potentials can become part of innovation concepts in mining regions. If innovation is seen as a regional task involving actors from different fields and levels (Hassink 1993; White 2007; Harfst & Wirth 2011), the creative use of mining potentials can contribute to the modernisation of mining cities and regions. Since many obstacles are to be found in small towns and remote regions, research can contribute by analysing good practice initiatives.

These aspects raise the following *questions*:

- What is the situation in post-mining regions in Central Europe at the beginning of the 21st century?
- What are the challenges for regeneration in former mining sites and regions characterised by small and medium-sized towns?
- What role do natural and cultural potentials play in the redevelopment of mining regions? Can they be more than a supporting factor in redevelopment?
- What experience of good practice is available in Central Europe? How can it inspire regeneration in other regions?
- If transition in mining regions is seen as a multi-level governance process: Who is involved? What are the fields, arenas, and levels of interaction? How can the scope for action be enlarged?
- How are mining potentials embedded in urban and regional development strategies? What fosters, what hampers the exploitation of potentials?
- What is the role of heritage sites in post-mining development? What can geo-tourism and event tourism contribute to post-mining development?
- What role do post-mining potentials play in urban and regional modernisation? And how do the relicts of old industry affect the lives of younger generations?
- How can regional policy in Europe and nation-states better support regeneration in small towns and remote mining regions?

This volume does not claim to answer all these questions. But we have taken a first step towards doing so in the hope of encouraging research in the field of post-mining development of cities and regions.

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**Part II:
Central European
Mining Regions –
Selected Cases**

Introduction

This volume brings together studies on seven mining regions in the Central Europe programme space that participated in the ReSource project (see also Fig. 1):

- __Mansfeld-Südharz (Germany)
- __Zwickau-Lugau-Oelsnitz – FLOEZ (Germany)
- __Steirische Eisenstrasse (Austria)
- __Zasavje (Slovenia)
- __Sokolov-východ (Czech Republic)
- __Salgótarján (Hungary)
- __Wałbrzych (Poland)

The following chapters in part II of this volume go into the regional status-quo of each post-mining region, highlighting general location factors, the utilisation of post-mining potentials,



Fig. 1: Regions under investigation in the ReSource project

1 The introduction is based on data collected by all authors of this volume.

and the configuration of actors involved in shaping the use of such potentials. Each part gives a unique and comprehensive picture of the conditions in Central European post-mining regions at the beginning at the 21st century and what challenges they face in exploiting their potentials.

But before we turn to the individual regions, this introductory section discusses and compares basic structural data on all of them. This is necessary because of differences in national and geographical contexts but also in size and in demographic and economic structures. The following comparative analysis of these framework conditions throws light on the common problems of and distinctions between the Central European mining regions discussed in this volume and beyond.

An Analysis of Seven Central European Mining Regions

The institutional framework of the regions in focus ranges from administrative structures like districts and municipalities to inter-municipal cooperation initiatives. Of the cases discussed only Mansfeld-Südharz is an entire administrative district (Landkreis) in its own right. The City of Salgótarján ranks as a district town, while the Steirische Eisenstrasse, FLOEZ, Sokolov-východ and Zasavje regions are all intermunicipal cooperation initiatives. Only Wałbrzych is currently a stand-alone municipality. The population of the regions and cities ranges from 40,000 to 160,000 (Fig. 2).

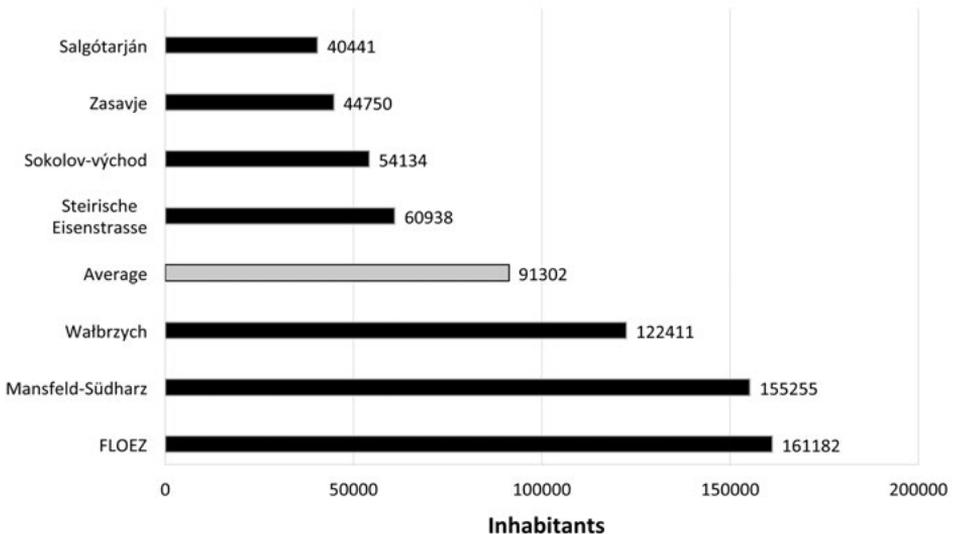


Fig. 2: Inhabitants in investigated regions 2008 (Source: Harfst et al. 2010 based on national statistics)

The regions under consideration include densely populated urban centres like Zwickau and Wałbrzych, as well as sparsely populated regions like the Steirische Eisenstrasse and the Mansfeld-Südharz district. Population data shown in Fig. 3 identify three urban regions with more than 300 inhabitants per km² (Wałbrzych, FLOEZ, Salgótarján), two densely populated areas with around 150 inhabitants/km² (Zasavje, Sokolov-východ) and two rural regions with fewer than 110 inhabitants/km² (Steirische Eisenstrasse, Mansfeld-Südharz). Nevertheless the focus of this investigation is on spatial units characterised by small and medium-sized municipalities.

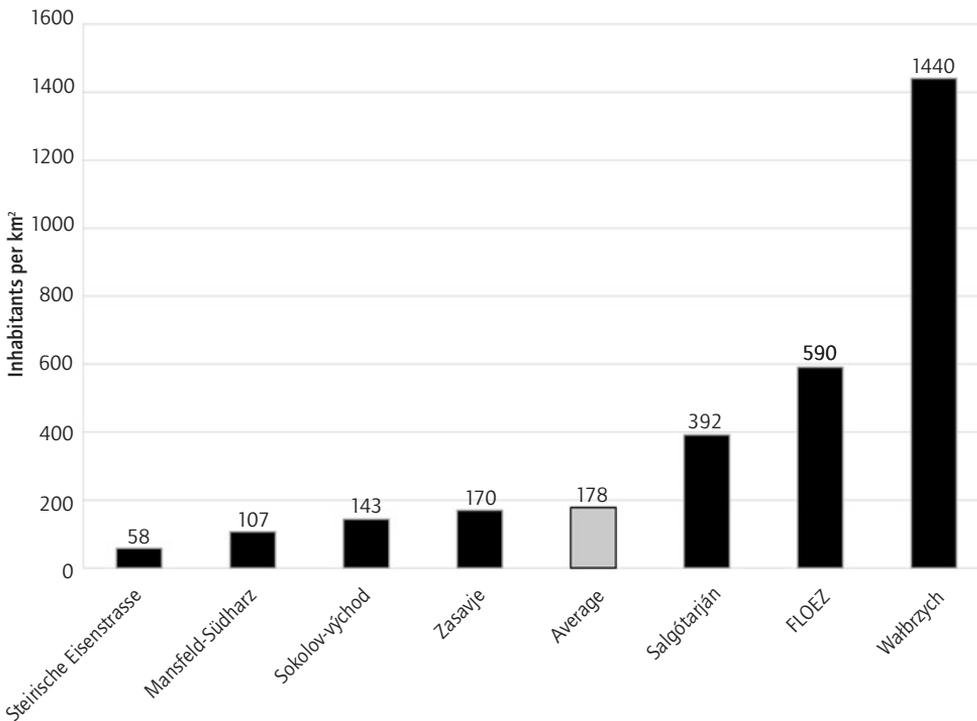


Fig. 3: Inhabitants per km² in investigated regions 2008
(Source: Harfst et al. 2010 based on national statistics)

The type of mining practised also differs from area to area: brown coal mining (underground and open-cast) in Salgótarján, Sokolov-východ and Zasavje, as well as underground hard coal mining in the FLOEZ and Wałbrzych region; copper and iron ore mining are represented by Mansfeld-Südharz and the Steirische Eisenstrasse.

Fig. 4 gives a simplified overview of final period of mining activities. It highlights the different stages of development across all regions. In the FLOEZ region active mining ended already in the late 1970s when replacement industries were introduced under the then state-planned system of the German Democratic Republic. Three other examples experienced "shock-

therapy”, with active mines being closed shortly after system transformation in former Eastern Bloc states. Mines in Mansfeld-Südharz and Salgótarján were thus closed in the early 1990s due to economic inefficiency. Production and employment had already fallen in both locations in socialist times, and in Mansfeld-Südharz phasing-out scenarios had even been discussed. But regime change brought mining to an abrupt end in both regions. In Wałbrzych phasing out was more cautious, but there, too, all active mines were closed in a brief space of time between 1990 and 1998. Mining continues in the regions Zasavje, Sokolov-východ and Steirische Eisenstrasse, but production and employment have been substantially downsized over recent decades and a long-term time horizon for the closure of the industry has been set in all of these regions (2020-2040).

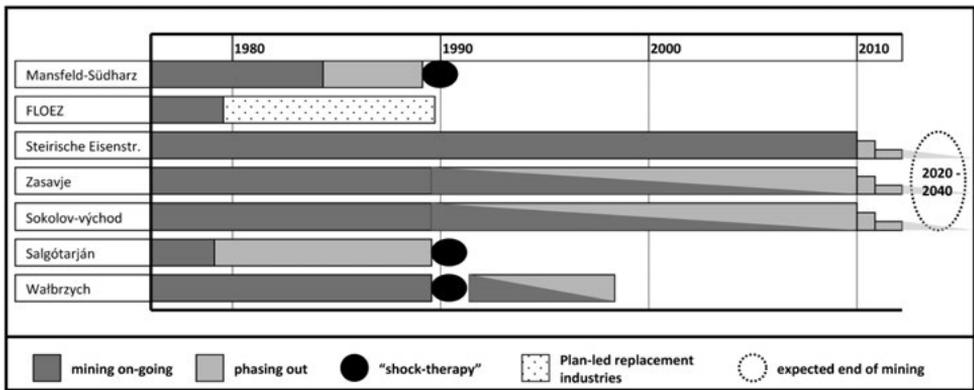


Fig. 4: Development of mining activities in investigated regions (Source: IOER)

Nevertheless, the imprint of mining did create some similarities even across such diversely structured places. All these regions record negative demographic development since 1990, when (with the exception of FLOEZ) the mining industry had experienced closure or substantial down-sizing. The population in at least three regions still grew considerably in the 1980s. Table 1 shows that this trend was particularly strong in Zasavje and Wałbrzych. Over the last two decades the population numbers have fallen substantially in all regions, with the exception of Sokolov-východ, where population development has remained stagnant. In the past 20 years the total population decrease ranged from 5.5% in Zasavje to 20% in Mansfeld-Südharz. In addition to the overall decline in population, the regions in focus have recorded a rise in the proportion of older residents, in some cases inverting the figures for the under 15 and over 65 age groups. These trends have been especially pronounced in Mansfeld-Südharz, Salgótarján and the Steirische Eisenstrasse (Harfst et al. 2009).

Tab. 1: Population development (total) 1981 – 2008
 (Source: Harfst et al. 2010 based on national statistics)

Population development	1981	1991	2001	2008	Change 1991-2008
Mansfeld-Südharz	213,090	193,837	173,631	155,255	-19.9%
FLOEZ	<i>n/a</i>	195,041	172,205	161,182	-17.4%
Steirische Eisenstrasse	77,420	70,223	64,459	60,938	-13.2%
Zasavje	46,304	47,356	46,123	44,750	-5.5%
Sokolov-East ¹	53,585	53,634	54,200	54,134	0.9%
Salgótarján ²	49,603	47,822	44,964	40,441	-15.4%
Wałbrzych ³	133,549	141,000	131,650	122,411	-13.2%
Total	<i>n/a</i>	342,649	318,918	294,580	-14.0%
average change 1991 - 2008					-12.0%

data available for: ¹ 1980 // ² 1980+1990 // ³ 1980+1990+2000

These demographic changes are more or less the result of the profound and far-reaching transformation of regional economies. All regions have experienced – sometimes rapid, sometimes gradual – pronounced down-scaling in the number of employees working in the industrial sector over the past 25 years. Many jobs were lost as mining and related industries ceased production or were downsized, regardless of whether other industrial or service related sectors had a footing in the region. All regions have accordingly faced a shift in jobs from industry to services over the past 30 years. Table 2 shows this trend. According to the data available, most regions experienced a reduction in the share of industrial employment of around 20% (Sokolov-východ, Zasavje, Steirische Eisenstrasse, Mansfeld-Südharz), while in some regions the shift has been even more severe (Salgótarján) or less pronounced (FLOEZ, Wałbrzych). In most regions this trend resulted also in a net loss of employment. In the last 25 years only the Austrian region managed to create more jobs than were lost.

Tab. 2: Employment change per sector 1991 – 2008
(Source: Harfst et al. 2010 based on national statistics)

region	Sector	date		change	
		1991	latest	total	relative
Mansfeld-Südharz ¹	Sector I	6,800	2,300	-4,500	-66.2%
	Sector II	34,600	12,300	-22,300	-64.5%
	Sector III	35,300	34,000	-1,300	-3.7%
FLOEZ ²	Sector I	3,500	2,500	-1,000	-28.6%
	Sector II	55,900	45,900	-10,000	-17.9%
	Sector III	89,800	92,500	2,700	3.0%
Steirische Eisenstrasse ³	Sector I	1,110	1,280	170	15.3%
	Sector II	10,263	8,665	-1,598	-15.6%
	Sector III	14,694	16,490	1,796	12.2%
Zasavje ⁴	Sector I	105	16	-89	-84.8%
	Sector II	12,389	6,586	-5,803	-46.8%
	Sector III	5,510	6,370	860	15.6%
Sokolov-východ		<i>n/a</i>			
Salgótarján ⁵	Sector I	547	31	-516	-94.3%
	Sector II	10,932	2,979	-7,953	-72.7%
	Sector III	9,897	6,731	-3,166	-32.0%
Wałbrzych		<i>n/a</i>			
average	Sector I	12,062	6,127	-5,935	-49.2%
	Sector II	124,084	76,430	-47,654	-38.4%
	Sector III	155,201	156,091	890	0.6%

1 Due to administrative changes, data before 1990 not available, time span: 1996/2007

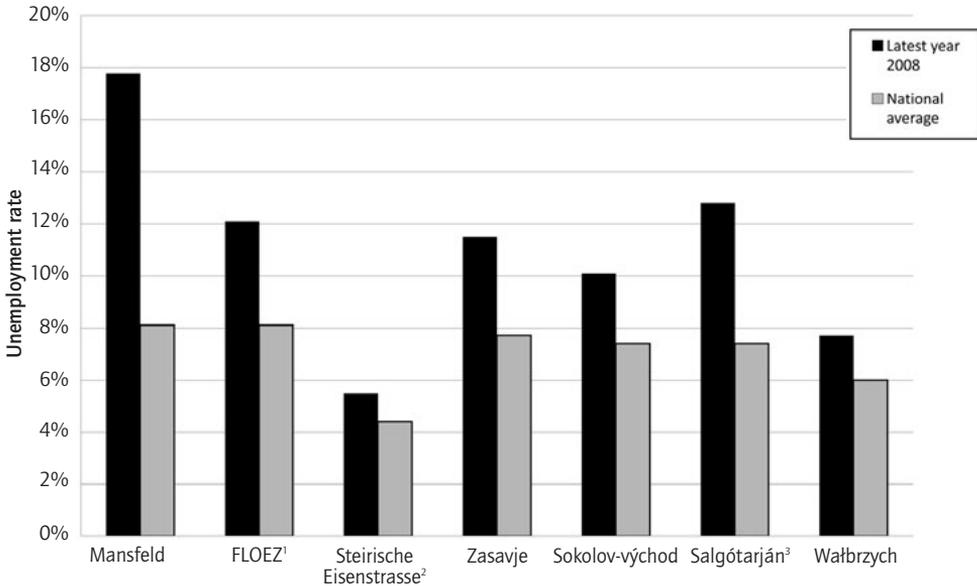
2 Data: Zwickau district, due to administrative changes, data before 1990 not available, time span: 1996/2007

3 Time span: 1991/2006

4 Time span: 1991/2008

5 Time span: 1990/2007, based on residence principle

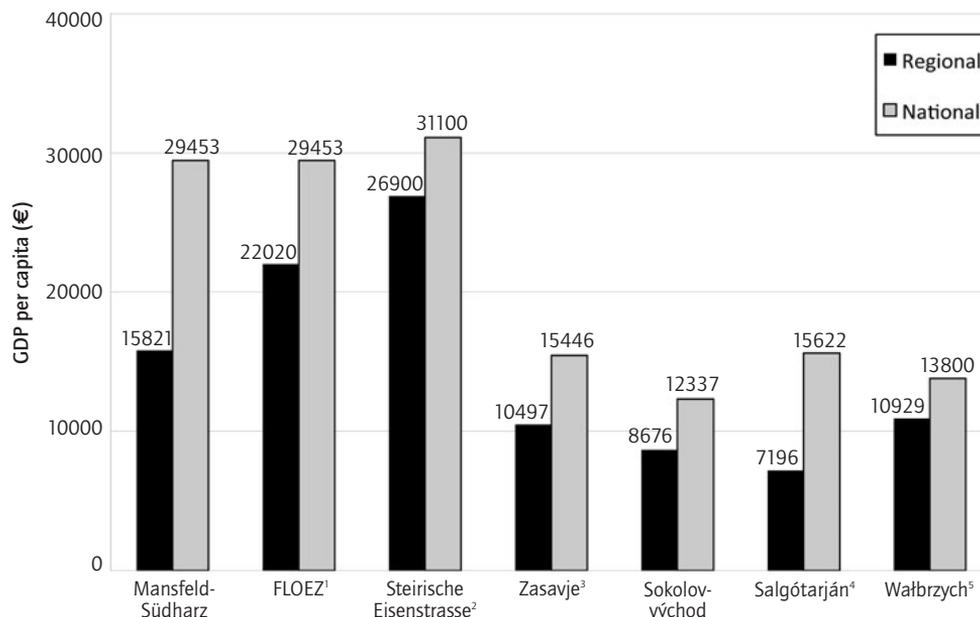
The transformation of the employment base has led to persistently high rates of unemployment. In all focus regions the level of unemployment is considerably above the national average. In only two of the seven regions are unemployment rates below the 10% marker (Steirische Eisenstrasse and Wałbrzych) as shown by Fig. 5. The figures show the lasting effects of mine closure in all regions on local employment markets, where the loss of industrial sector jobs could not be compensated totally by the creation of jobs in the service sector.



Notes: ¹ Data: Zwickau district, 2008 // ² Data: Leoben district, 2008 // ³ 2007

Fig. 5: Unemployment rates in investigated regions 2008
(Source: Harfst et al. 2010 based on national statistics)

What is more, GDP is lower than the national average. As Fig. 6 shows, this trend is especially pronounced in Salgótarján and Mansfeld-Südharz, where local GDP rates are only half the national average. This indicates that these regions obviously lack strong economic structures since the end of mining.



Notes: ¹ Data: Zwickau district // ² Data: Eastern Upper Styria, 2006 // ³ 2006 // ⁴ Data: Nograd district // ⁵ Data: NUTS region Wałbrzych

Fig. 6: GDP per capita (€) in regions under investigation 2007
(Source: Harfst et al. 2010 based on national statistics)

Conclusion

While data analysis underlines the diversity of the regions, it also shows that all have to face the same challenges in overcoming the negative effects of the cessation or downsizing of mining activities. The problems faced are high unemployment, low GDP rates, and negative demographic developments (especially the outmigration of younger and skilled people). These problems tend to occur in varying degrees, depending on the development path taken by each region and specific national and local framework conditions. While some regions were able to rely on other industries and/or profited from state intervention to help mastering transformation (FLOEZ, Steirische Eisenstrasse, Wałbrzych), others have largely been left to cope alone with the full force of mine closure or industrial downsizing. Overall, the examples show that the regions under study have attained varying stages in overcoming path-dependency in regard to the mining industry.

The coming chapters focus on each region in turn to provide a detailed picture of the situation and the specific challenges each faces in dealing with far-reaching structural economic and social change.

Salgótarján (Hungary) – The Rise and Fall of a Mining and Industrial Region

Introduction

The history of Salgótarján in the 19th and 20th centuries, one of the most important Hungarian mining and industrial centres in past decades, is typical of small Central European towns in mining areas. The town lies in northern Hungary on the Slovakian border encircled by the Karancs and Medves Mountains.

Under the EU regional classification (NUTS) it is located in the North Hungarian Region (HU31), is the capital of Nógrád county, and the centre of the Salgótarján Microregion, as well as one of 23 Hungarian county-rank towns. In the North Hungarian Region, Salgótarján comes third after Miskolc and Eger in terms of population and density, and 22nd among all county-rank towns. As far as the population is concerned (*Tab. 1*), it is a small town but its status as a county makes it an important administrative centre, merited by its considerable industrial and mining past: the town was once the heart of the Nógrád brown-coal basin, one of the most important mining areas in Hungary from the 19th century to the end of the 20th century.

Tab. 1: Basic data on Salgótarján and Somoskőújfalu.

(Source: Hungarian Central Statistical Office)

(Notice: Somoskőújfalu village was part of Salgótarján between 1977–2006)

	Area (km²)	Population	Density
	2009		(residents/km²)
Salgótarján	100.84	38,207	
Somoskőújfalu	2.33	2,234	
<i>Total</i>	103.17	40,441	392

The surrounding Northern Mountain Range building up to the inner range of the Carpathians is characterised by low-lying hills interspersed with basins. This is the typical landscape in the Eastern Cserhát and the Karancs-Medves Region in the vicinity of Salgótarján. In the Lower Miocene period a warm, humid subtropical climate prevailed and dense vegetation covered

the region, giving birth to the brown-coal strata in the vicinity of Salgótarján. This coal was mined for 150 years. Much later, in the Pliocene period, violent volcanic activity took place accompanied by intensive tectonic movements. As a result, basalt erupted creating the most characteristic landforms of the region. The large basalt mines of the 19th century were sunk in these outcrops. Mining was the most significant man-made force in transforming the landscape. In spite of strong anthropogenic effects, both its natural (geological, geomorphic, botanical, aesthetic) and cultural and historical value is still very high (Kiss et al. 2007).

Until coal mining started, Salgótarján was a relatively insignificant settlement. In 1922 it obtained town status, continually incorporating neighbouring villages. This “greater” Salgótarján consisted of rural settlements surrounding a not very urban centre. In 1950 Salgótarján became the capital of Nógrád County. During the 1950s, state development projects gradually transformed the community into a real “socialist town” presiding over the industrial, administrative, business, and cultural life of the county. Later, in the 1960s and 1970s, the old town was almost totally demolished to be replaced by a new town centre of prefabricated buildings and tower blocks (*Fig. 1*).



Fig. 1: View of Salgótarján with the Karancs Mountain in the background (photo: Dombi)

By the end of the 20th century, coal mining had become unprofitable. Production at the large state-owned coal company was therefore cut back and finally wound up. This was soon followed by the decline of heavy industry in the early 1990s. The town and its surroundings

became depressed areas. The well-known problems of declining industrial regions, such as redundancies and growing unemployment also appeared (Horváth 2003, 2005). This situation has been exacerbated by the fact that several industrial areas in the North Hungarian region have faced the same difficulties. The government has yet to provide a clear-cut development plan for restructuring and improvement. Neither is European Union funding available for solving the problems of mining regions. They are unfortunately considered a local, regional problem, not entitled to state subsidization.

Mining Past and Present

The former mining area along the Zagyva river and its tributary the Tarján Brook covers several partly separate coal fields. The northernmost and one of the biggest is situated near Salgótarján, mainly within the bounds of the municipality (Fig. 2).

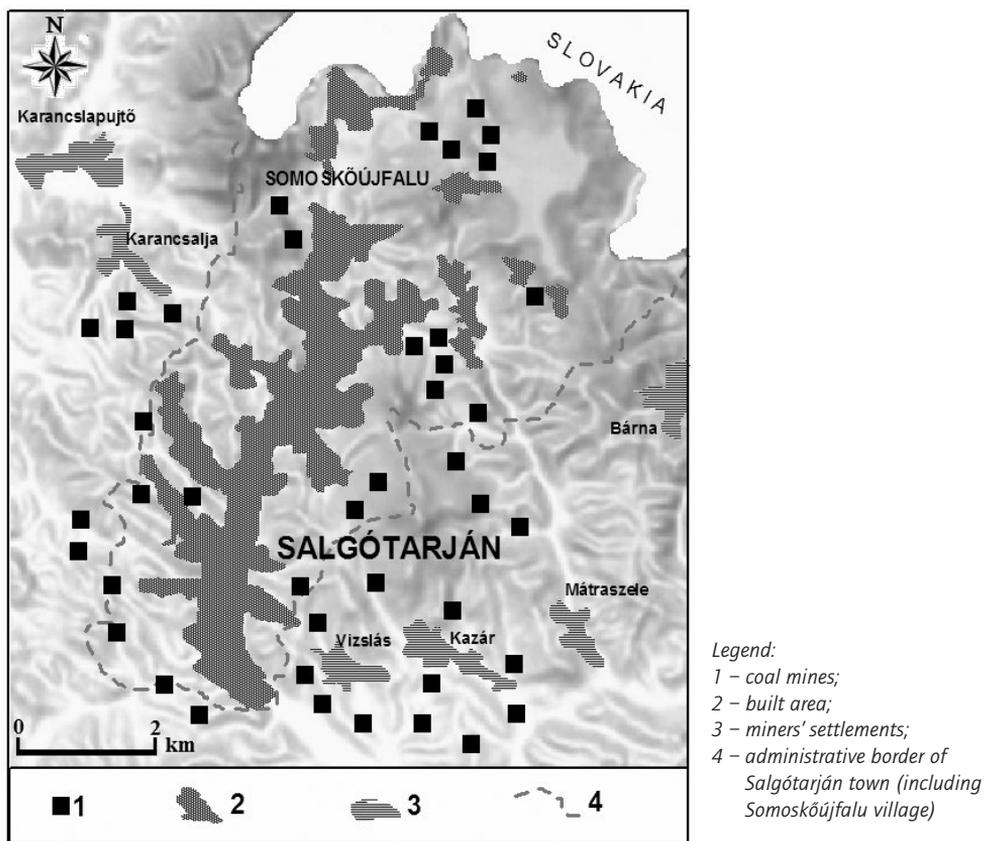


Fig. 2: Location of the former coal mines in the vicinity of Salgótarján (ed. by Csüllög and Horváth).

The local history of brown-coal production (Szvircsek 2000, Dósa et al. 2006) was initiated in 1848 by private companies, to extend gradually in the region (*Tab. 2*). By the 1940s most production had shifted to the south of the region. In the socialist era after 1948, the industry was nationalised, and in 1952 the Nógrádi Szénbányászati Tröszt (Nógrád Coal Mining Trust) was founded, significantly increasing production under the massive industrialisation projects of the subsequent five year national plans. The region saw unprecedented highs in coal production in a network of underground and some open-cast mines. By 1970 production was gradually decreasing. In the 1980s it fell to the level of a century earlier as the yield of the underground mines declined and production expenses grew. Open-cast mining and different technologies were unsuccessfully experimented with. Severe unprofitability plunged the enterprise into deficit and imposed reorganization. In 1993 the company then called Nógrádi Szénbánya Rt (Nógrád Coal Mining Ltd) went out of existence; as in many other parts of the country, coal production was discontinued. Mining, however, involves more than the workings alone. A great amount of complementary infrastructure had been put in place, such as delivery systems, long distance transmission lines, viaducts, screening units, drainage works, ventilators, shaft towers, power plants etc., and also mine dumps.

Tab. 2: Coal mining production in the Nógrád Brown-coal Basin and the number of employees 1867–1990 (by Dósa et al. 2006 and Svzircsek 2000)

Year	Production (1000 metric ton)	Number of employees
1867	39	833
1870	285	2,194
1880	523	2,495
1890	1,076	3,972
1900	1,624	5,666
1910	1,542	6,861
1920	1,243	9,972
1930	1,278	7,110
1940	1,735	8,971
1950	1,779	9,910
1960	3,380	14,865
1970	1,975	9,015
1980	927	5,823
1990	501	2,226

For decades, basalt mining in Hungary's largest quarries on the Medves plateau was also very important due not only to favourable logistical circumstances but also to the good quality of the basalt. The largest crushing-mill in Central Europe was built there in 1927. After being

nationalized, basalt mining continued in three big mines until 1955. At the end of the 20th century basalt mining was gradually abandoned together with coal mining; the demand for basalt declined and the common infrastructure played an important role. Cutting back in one sector inevitably meant decline in the other.

Salgótarján was raised from obscurity by coal mining but the development of the settlement and the town structure were influenced by another branch of industry, as well: coal production attracted the iron and steel industry to the area. Iron ore mined in the Szepes-Gömör Ore Mts. nearby gave good opportunity to develop a metallurgical complex based on coal, the Rimamurány-Salgótarjáni Vasmű Rt. (Rimamurány-Salgótarján Ironworks Ltd). Railway construction also promoted the development of mining and industrialization. In 1893 the iron and steel industry was joined by the glass industry (sheet and hollow glass), which was to play an outstanding role for decades. The mining and industrial boom brought massive natural and social changes, the composition of society was transformed. The once farming community gradually gave way to one composed of miners, carriers, and industrial workers. Salgótarján became a major industrial centre and played a very significant role in the Austro-Hungarian Monarchy before World War I.

In 1920, having lost most of its territory, Hungary also lost its mineral resources. The remaining Salgótarján coal field consequently became even more important. Some decades later, the socialist era brought not only an increase in coal production but further industrialisation, as well. Industrial investment grew, a new iron and steel works were built in Nagybátony (a city close to Salgótarján), plants manufacturing textiles and stockings, as well as a radio technology factory set up in the region. In the 1970s, 85% of regional industrial output was in heavy industry and 95% of industrial workers in Nógrád County were employed in the plants of this region. 40% of Salgótarján's population worked in industry. In spite of seemingly spectacular success, the decline of the area can be traced back to as early as the 1970s. Nevertheless, until the change of regime, the town and its surroundings remained an environmentally heavily polluted, almost completely industrial area marked by a real "socialist" mentality. At the time of regime change, steel, glass and machinery were still leading sectors, but these traditional industries have now almost completely disappeared from the region. However, 100 years of mining and industry have produced not only a significant industrial structure and a regional administrative centre but also a considerable urban society served by a well-built infrastructure. This society still includes a well-educated technical intelligentsia and a basis of skilled workers.

Before 1989, Salgótarján had been an important industrial centre in the North Hungarian Region. This is one reason why the changes thereafter hit the town very hard. The markets for products disappeared, rationalisation reigned, and the situation for factories and plants became disastrous. Some tried to change their production profile, but orders ceased, production became uneconomical. More and more industries abandoned or minimized production and dismissed their workforce. Though some popular products (safety glass, kitchen stoves, steel wire) maintained their position on the domestic market, production also fell strongly (Horváth 2005).

As a result of industrial structural change in the mid-1990s, mines closed, industrial production plunged still deeper into crisis, other important plants went bankrupt and closed down, dramatically reducing the number of jobs in industry and causing huge (10%) unemployment by the turn of the century (*Tab. 3*). The town lost not only its socialist industrial structure, but also lost out in the structural renewal of industry because foreign companies failed to invest in the region. The Salgótarján region became a typical depression belt with all the characteristics of Central East European crisis areas.

Tab. 3: Changes in the unemployment rate between 1980 and 2007.
(Source: Hungarian Central Statistical Office)

	Unemployment rate (%)			
	1980	1990	2001	2007
Salgótarján and Somoskövőfalva	0.0	3.0	14.0	12.8
Hungary	0.0	0.0	5.7	7.4

Regional Strategies for Developing Post-Mining Potentials

In Hungary, the state has made no attempt to subsidize the development of depressed industrial regions. Partial solutions have been offered for individual problems and areas, but the Salgótarján region was not included. A major difficulty in developing overall postindustrial strategies is that the large state-owned mining company had been closed down even before regime change without any obligation being assumed to solve the remaining infrastructural and environmental problems. The large industrial companies had been wound up in similar manner, so that there was no economic entity left to be held responsible for or take an interest in rehabilitation. Consequently, the town had to find ways and means for overcoming the crisis on its own. Over the past decade, the tasks facing local authorities have been beyond their means and, not receiving any financial assistance, they have been unable to finance such projects.

The municipality has come to recognize that it has inherited not only problems but also opportunities. The mining and industrial history of the region offers potentials that can be exploited. They include the central role "brought" by mining, administrative institutions, a skilled workforce, and a local industrial and mining infrastructure. There are also environmental potentials, such as natural and regional values. Unfortunately, no geothermal energy is available as in other mining towns; only the waterworks makes use of mine inflow.

Both the Salgótarján Microregion and the town of Salgótarján have regional development plans with detailed short and long-term strategies. The county has similar plans and strategies. There are projects to develop tourism and utilize the cultural features of the region, too. Unfortunately, these plans do not include the mining heritage at all or, if they do, it is not

stressed enough (for example the remaining mining infrastructure or mining heritage are only mentioned in passing).

The regional development plan for the Salgótarján Microregion covers the period 2008-2015. Its main goal is industrial structural transformation; mining is hardly mentioned, only as a historical heritage, and from another viewpoint, in the chapter on successful tenders, stating that the Bükk National Park (to which the Karancs-Medves Landscape Protection Area belongs) was granted 6 million forint to conserve inanimate natural assets; and in the chapter on tourism where some buildings forming part of the mining infrastructure were named as future tourist centres. An important element in the conception is to create an innovation syndicate to plan and carry out rehabilitation projects. Nevertheless, the sections on solving social problems and strengthening social cohesion also deal with the renewal of mining areas.

The most important plan towards dealing with abandoned mine sites, especially the basalt mines, is the management plan of the Karancs-Medves Landscape Protection Area. The problem is that the protection area covers only part of the region and naturally does not deal with all mines. What is more, its main aim is not spatial development.

The economic development programme for Salgótarján Town covers the period 2007-2018. It has little to say about the mining heritage, mentioning only the existing mining museum in the context of the planned industrial heritage museum. Mining comes too short in the integrated strategy for the development of Salgótarján adopted in 2008. In 2009 the Salgótarján council adopted the rehabilitation action plan for the town centre. This plan mentions the mining museum among the cultural institutions. The municipality is coming to recognise the need to revive the mining heritage. Some moves had already been made in this respect in 2008 and 2009.

In sum, the potentials of the mining heritage play only a minor role in existing development plans. However, some civil-society organisations like the Karancs-Medves Foundation and the Miner-Foundry Worker Tradition Conservation Association have initiated projects to preserve and exploit the mining heritage.

The State of the Region

Policy

Hungarian local authorities are in a special situation from a political point of view. On the one hand, tasks formerly performed by the state were assigned to local authorities, which were not provided with sufficient resources to perform them, so that all communities need and expect state assistance. On the other hand, a perpetual problem in Hungarian administration is whether local and national government are in the hands of the same political group. Local authorities governed by parties in opposition at the national level often feel neglected

when it comes to gaining state subsidies. Nevertheless, the fact that Salgótarján and central government are in the same political hands brings no advantage because almost all local governments have the same affiliation after a sweeping electoral victory by the leading party.

As in many other small and medium-sized industrial towns of the region, the situation in Salgótarján is not easy. The well-known problems are joined by others specific to the town. Problems are mainly caused by the desperate lack of financial resources following the cessation of mining and industrial decline in the wake of national economic structural change. With the closure of industrial plants, the number of people in work has constantly diminished bringing permanently high unemployment. The population of the region depends on jobs in town even today, so the problems of the surrounding villages reflect those of the town. Central government economic policy over the past two decades has not increased the competitiveness of the region, so the introduction of new economic structures failed to attract appropriate investors. The expected investment by major multinational companies in the region failed to materialise. Inadequate efforts to achieve regional and local development have meant that the economy is not solidly financed, appropriate economic actors are few, and there is no sign of new factors in the structure of the economy. The tight financial situation has exacerbated the difficulties in performing mandatory administrative functions in such fields as education, health, and urban maintenance. As a result, the functions devolved by the government in the 1950's and later now lack proper political backing, namely financing, so the town cannot influence the surrounding area and cannot defend its own interests in national regional planning policy.

Education and population

The town's potentials nonetheless lie mainly in its mining and industrial past and the central role that it played as a result. Its status of county town made it not only an economic centre but a health, educational and cultural centre, as well. Salgótarján is not only the capital of a county, but also an urban county in its own right, which broadens its scope for action. Industrial development brought dense settlement and county institutions provided a substantial and long-term basis for urban functions and for maintaining the role of the town. Economic prosperity has favourably affected demographic structures, mainly as regards age and education. The level of skills is higher than in neighbouring areas. At first glance, the age structure of the town is not promising. As at the national level, the proportion of the under 15s is falling and that of older generations is growing, but changes are no worse than the national average. The level of education is much more favourable, better than the national average, partly because educational structures remained at a high level during the recession (due mainly to the generations of skilled workers and technical white collar workers that a strong economy produced opting to remain in the area). Outmigrants have tended to be less well educated manual workers. This has maintained a relatively high level of education.

Infrastructure, institutions

The more than rural infrastructure in local transport, social services, health, and education has been a major factor in retaining the population; the municipality has managed it well during the recession and since. The situation is enhanced by the considerable intellectual capital available, partly in the economic field, provided not only by older experts but also by current economic actors in the interest of the town's social, health, educational and cultural institutions.

Easily accessible knowledge centres also provide intellectual capital. There are numerous educational and cultural institutions in Salgótarján, including 12 primary schools, 9 secondary schools and a college. The last institution is the Salgótarján division of the Budapest College of Finance and Accountancy of the Budapest Business School, founded in 1972. The town also has two art schools. The quality of most primary schools and nearly all secondary schools is good, and the only tertiary educational institution (college) also compares well with the national level. Unfortunately, however, graduates have difficulty finding work locally in their fields.

Among cultural institutions, the József Attila Educational and Conference Centre is the most important. It hosts exhibitions, lectures, concerts, and individual children's programmes. The Nógrád County History Museum presents permanent and temporary archaeological, historical, art and applied art exhibitions. Part of this museum is the Mining Museum (officially Mining Exhibition Hall), which includes an above-ground exhibition hall and an underground gallery converted into a show mine. Other cultural facilities are the Balassi Bálint County Library and Public Educational Institute, and the Foundrymen's Cultural Centre Association. Among health institutions the most important is the 656-bed St. Lazarus Hospital.

Cultural and historical landscape

The town with its surroundings is a significant natural, cultural and historical landscape. The natural features of the area are favourable. The rolling highlands are well wooded and there are important nature reserves of geological and morphological interest (Kiss et al. 2007) within the bounds of the municipality. Developing these assets could substantially enhance the quality of life and offer an outstanding touristic destination. The mining and industrial past also provides legacies that could be exploited. Even after the cessation of mining many potentials remained in surrounding areas. The physical infrastructure left (mining settlements, etc.) and mining traditions have also survived. The massive mining activities and associated industry had an effect not only on settlement structures. It considerably transformed the landscape. The ecological wounds of mining, the enormous mine dumps, the mining infrastructure (inclined shafts, mine cars, loading platforms, ropeways and railways with cuttings, embankments and tunnels) drastically altered the relief of the area (Karancsi & Mucsi 1997, Horváth 2003). The Salgótarján mining area is a small but important part of the Novohrad-Nógrád Geopark (Szarvas 2009, Csüllög & Horváth 2011). To manage the new projects, the Nógrád Geopark Association was founded to supervise professional aspects and the Novohrad-Nógrád

Geopark Ltd to handle economic activities. The directorates of the Bükk National Park (to which the Karancs-Medves Landscape Protection Area also belongs) and the Karancs-Medves Nature Protection Foundation play a major role in research into and the popularization and protection of regional assets. The same aims are pursued by the Hungarian ProGEO Association, founded to popularise the geoheritage.

Environmental conditions

After the decline of mining and industry and given the constant need for economic recovery, all this gave rise to a characteristic type of settlement, a mix of housing environment and industrial landscape. Industrial activities having been abandoned, vast rustbelts remained, causing great problems with the unfavourable town structure and industrial areas extending into residential areas. These are still obstacles to creating new urban functions and modernising the urban structure (Csüllög & Horváth 2010). The predominance of the rustbelt is a burden even outside the town (*Fig. 3*), since no-one bears responsibility for the suburban industrial



Fig. 3: A typical rustbelt: ruins of the former coal-fired power plant (photo: Horváth)

landscape. Environmental problems are numerous both in and around the town, and landscape degradation is significant. Environmental degradation (water quality, heavy metal, dust), mine dumps, abandoned galleries, quarries etc. (Karancsi & Mucsi 1997) need to be properly rehabilitated, but this can be achieved only with new financing in combination with new functions. Surface mining caused unwanted changes and damage to the water system and flow conditions, and the surface scars left on the landscape are a major aesthetic problem. Mine dumps are also a danger. Small landslides occur in the rainy season and dust pollution is a frequent phenomenon in the dry season. The cessation of mining has not diminished the problems, as the reclamation of abandoned mines and mine dumps has always depended on the political and financial situation.

The majority of problems are short-term difficulties that can be solved by well-managed improvements. The demography, infrastructure, and landscape of the area, as well as the expertise and educational level of the population, local cultural amenities and traditions offer substantial potential for developing and exploiting the assets of the mining heritage. If this is achieved, the present environmental and economic problems could be solved. Success naturally depends very much on how the various external components are used.

Conclusion

Salgótarján is a town with good qualities in a favourable geographical setting and environment that has shared the fate of other industrial towns in Central Europe. Today the situation is critical. The town faces difficult economic and social challenges and is in desperate need of programmes and projects to meet them.

The crisis can be overcome by self-initiative to exploit the spatial situation, settlement structure, spatial structure, and traditions, mostly by creating new roles:

- The structured concentration of the population and the not unfavourable demographic structure can provide a useful basis for developing the human infrastructure
- The remaining and only partly obsolete industrial infrastructure can be systematically transformed and developed to separate housing from industrial areas
- The spatial situation can prove an asset due to a number of interacting factors, such as the border location offering profitable opportunities for more and more lively cross-border activities.

On this basis, strategies should concentrate mainly on the following goals: to retain the population, particularly young people who can deliver and create new functions; to strengthen central functions; to renew the infrastructure; to rehabilitate the landscape and exploit it for new functions; to increase the economic and touristic attractiveness of the area.

Rehabilitation should concentrate on unique selling propositions. Two fields are worth mentioning:

- The mining and industrial heritage of the town in settlement structure, economic processes, infrastructure, in the landscape of the town and surroundings and, last but not least, in local culture and traditions; this heritage permeates every part, process, and component of the town.
- The town's close relationship with the landscape, which has in many respects been integrated into the town. In both settlement structure or landscape utilisation, hardly any part of the surrounding area is without some kind of landscape utilisation relating to the town. Settlement has not supplanted but embraced elements of the landscape in which mining had played an important role. Town, mining and industry, and landscape have been inseparable (Csüllög & Horváth 2010). Landscape-related conflicts have not been resolved: only new, mainly economic uses can eliminate the old problems. In most cases, the ad hoc handling of a disturbed landscape or the rehabilitation, reclamation and revitalisation preserves a former condition that, although it seems more favourable, does not solve the problems of landscape utilisation.

A town with central functions needs to decide on its own development, and should naturally do so on the basis of its history, qualities, functions, and, most of all, on the basis of its values.

This self-determination must exploit the specificities of the town, what distinguishes it positively from others and allows it to establish a position among them and a unique profile in regional politics at both the national and European level. A solution to the problems with which the industrial crisis has confronted Salgótarján may be found if the municipality and the urban intelligentsia address and sustain the legacy of the past and find ways to exploit it. Salgótarján, too, must establish an image capable of raising interest, projecting an attractive picture of itself, and lending support to town marketing with appropriate propositions and infrastructure for business and tourism.

The town and region face a major challenge in this respect, given memories of the devastation left by the mining and industrial past. Although the visible impact the economic crisis has had on the town is a burden to society and obliges the municipality to take serious remedial steps, the real situation is different. The state of the environment and the image of the town have much improved since the industrial era. It is for this very reason that the municipality and local professional organisations, as well as national tourism offices and agencies should do a great deal more to correct this negative image.

Salgótarján and the communities of the historical Nógrád Coal Basin—drawing on the enormous prospects for development offered by the Novohrad-Nógrád Geopark—need well considered, financially well-founded, and sophisticated long-term planning based on local assets and intellectual resources to overcome present disadvantages in building a promising future.

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Mansfeld-Südharz (Germany) – From Industrial Heartland to Depleted Hinterland?

Mansfeld-Südharz: A Shrinking Former Industrial Heartland

The administrative district (Landkreis) "Mansfeld-Südharz" lies on the western border of Saxony-Anhalt, a state in the Federal Republic of Germany. Geographically, the area is a transitional landscape between the western mountain ranges of the "Harz" and the "Kyffhäuser" and the lowlands of the "Magdeburger Börde" and the "Leipziger Tieflandsbucht" in the East. The region is well-known for copper mining, which ended after centuries in 1990. At the peak of production in the 1960s it employed around 40,000 people in the area. The area is also renowned as the birthplace of Protestant Reformation leader Martin Luther (1483 – 1546), whose family had been closely associated with the local mining industry, and who also died there in the region.

Although the district lies at the geographical heart of Germany, its location is distinctly peripheral, being outside the Halle-Leipzig agglomeration and separated from western Germany by mountain ranges. Nevertheless the region is an important transit corridor with motorway links to Halle-Leipzig, Göttingen (BAB 38), and Erfurt (BAB 71). It is also an important East-West (Kassel to Halle) and North-South (Erfurt to Magdeburg) regional railway corridor.

Demographic facts

In 2009 the district contained 84 municipalities with a total population of 158,232, covering 1450 km². The most important towns are Sangerhausen (pop. 31,153), Lutherstadt Eisleben (25,500), Hettstedt (15,021) and Mansfeld (10,361). The biggest towns provide only regional and local facilities. With the redrawing of regional district boundaries in 2007, the new capital of Mansfeld-Südharz became Sangerhausen rather than the traditional historical centre, Lutherstadt Eisleben.

Population density in Mansfeld-Südharz, at 109 inhabitants per km², is below the national and state average (Germany: 230 km², Saxony-Anhalt: 116km²). The population has been declining since the 1970s. This trend accelerated substantially from 1990 onwards. Between 1990 to 2007 the population decreased by 20% (see Fig. 1). For 2025, the 2007 figure is expected to fall by a further 27%. By that date, 35% of the population will have reached

the retirement age of 65. The area is therefore at the forefront of demographic change, which many communities in Germany will be facing in the coming decades.

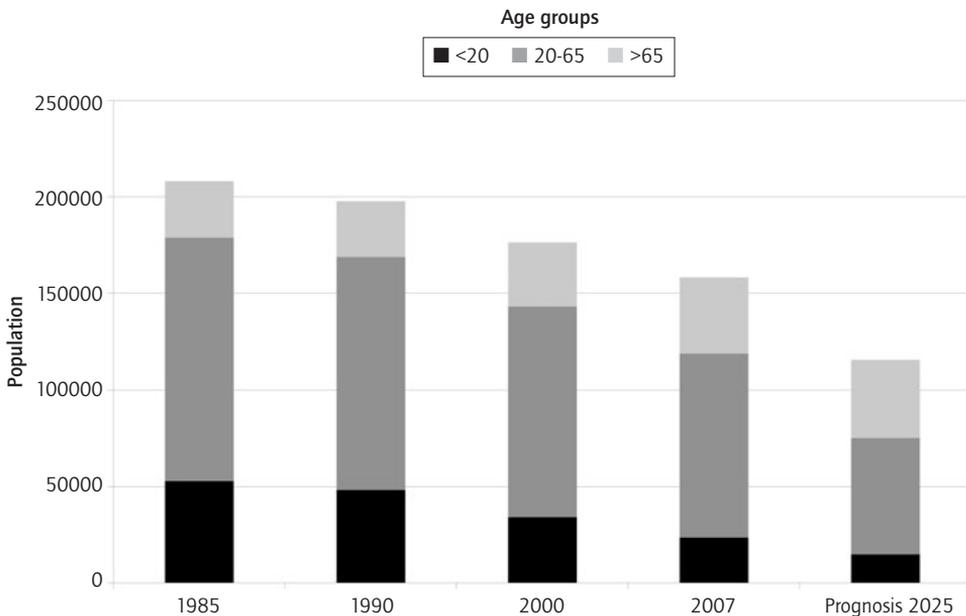


Fig. 1: Population development in Mansfeld-Südharz County by age groups
(Data: Statistisches Landesamt Sachsen-Anhalt)

Economic structures

The district is economically heterogeneous. Today the biggest employers are companies associated with former mining industries (MKM Copper rolling mill in Hettstedt¹, ROMANTA lignite mining²), but there are also some traditional manufacturing industries (MIFA³), as well as new branch industries (Klemme AG⁴). Since the end of mining in 1990 employment rates per sector have changed dramatically. Whereas in 1991 45% of the workforce was employed in the industrial sector, the figure in 2007 was no more than 25%, now reflecting average rates for the state and the country as a whole⁵ (see Fig. 2). Unemployment has remained comparatively high in the region ever since reunification and the end of mining, both in comparison to

1 Leading producer of copper-based semi-finished products. Located in Hettstedt since 1907.

2 Lignite mining company producing montanwax. Since 1922 in Amsdorf. About 480 Employees.

3 Bicycle manufacturer in Sangerhausen since 1907. About 400 Employees.

4 Producer of frozen bakery products. Located in Eisleben. About 900 Employees (all company data in footnotes 1 – 4: www.mansfeld-südharz.de).

5 Data: Landkreis Mansfeld-Südharz, Statistisches Bundesamt

federal and national figures (Mansfeld-Südharz: 19.0%, Saxony-Anhalt: 14.6%, Germany: 8.1%⁶). Despite the rich local cultural, natural and industrial heritage (Luther, viticulture, Süßer See lake district, mining history), the tourism sector has not been strongly developed. In this sector the region lacks a strong corporate image and the necessary touristic infrastructures.

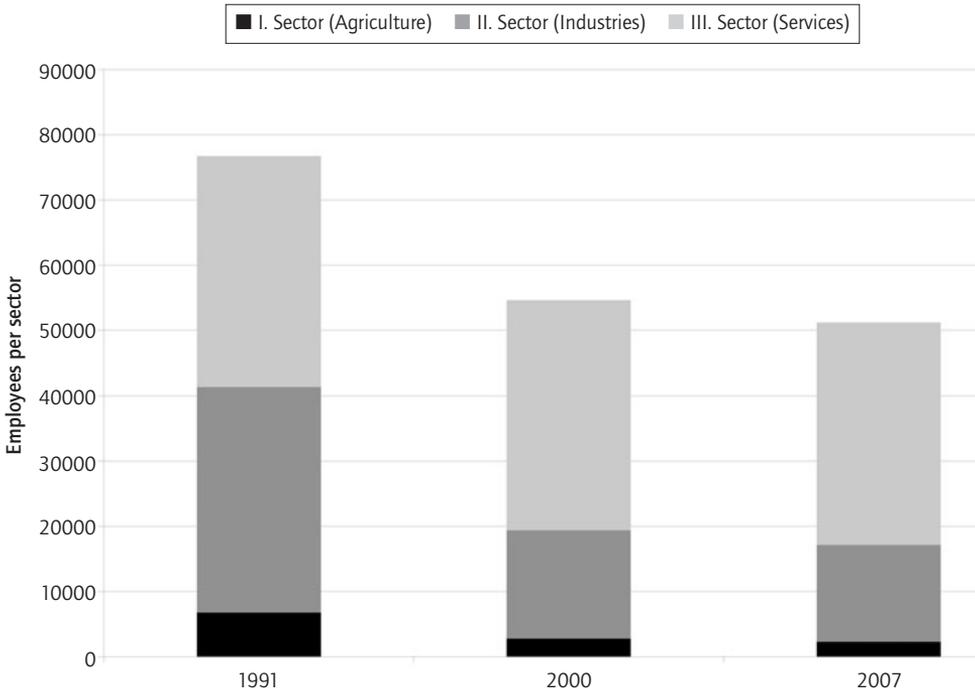


Fig. 2: Employment by major economic sectors in Mansfeld-Südharz, 1991 – 2007
(Data: Statistisches Landesamt Sachsen-Anhalt)

Mining Industries and the Mining Heritage

The name Mansfeld is associated with a more than 1000 year-old mining tradition. Copper-shale mining in this area was one of the oldest and for a time most important mining industries in the world (Jankowski 1995, 280). The most important material extracted in the Mansfeld-Sangerhausen district was copper, mined from 1200 to 1990, during which period

6 Data: Bundesagentur für Arbeit 1/2008

a total of 2,600,000 tons of sheer copper was extracted⁷. In addition to copper, the region of Mansfeld and Sangerhausen is also known for other ores, lignite open-cast mining and underground potash mining (Neuß & Zühlke 1982). With regime change in 1990, mining in the region came to an end because it was no longer profitable. With rising production costs and decreasing copper content, all ore extraction ceased. Lignite mining alone continues in coal fields in the southern part of the district.

Mining has produced some environmental problems in the district, mainly caused by smelting procedures. Some areas have been contaminated by heavy metals, and water and airborne toxic waste was the main environmental hazard in the region in the 1990s. In response to this problem, parts of the contaminated areas were included in the German federal programme "Ökologische Großprojekte" (Major Ecological Projects)⁸. The project "Mansfelder Land" was established in 1993, with rehabilitation measures scheduled from 1999 to 2009⁹. Another important and particularly conspicuous legacy are the numerous mine dumps in the region. More than 50 million m³ of excavated material had to be removed due to copper mining alone. While some dumps now provide material for road construction, huge areas of unsecured dumps remain, often without vegetation (see Fig. 3). Characteristic for the whole region are the huge "Spitzkegelhalden" (cone dumps), which are impressive landmarks in the region.



Fig. 3: Landscape with cone dump at the Thomas-Müntzer-Schacht in Sangerhausen/district Mansfeld-Südharz (Photo: IOER/Bieberstein)

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- 7 There was also a considerable exploitation of silver with about 14.200 tons during the same period of time. Moreover, numerous metals included in copper-shale, e.g. lead, zinc, molybden, nickel, gold were mined. The "polymetallic character" of the copper-shale made the Mansfeld-Sangerhausen mining district one of the resource-richest regions in Central Europe (Jankowski 1995)
- 8 This programme was designed after German unification to tackle major environmental damages in the New German states.
- 9 The project required total funding of about € 32 million. 75% of was supplied by the federal government and 25% by the state of Saxony-Anhalt.

Steering Structural Change – Governance Structures and Regional Development Strategies

Since the 1990s regional development in Mansfeld-Südharz has been framed by structural weaknesses after the end of the mono-industrial mining complex on which the region had depended for centuries. With few industrial branches surviving, the end of mining, and regional location factors unfavourable to the introduction of new (service-related) industries, the region has to cope with high unemployment and outmigration, especially by skilled, young people. The trend was exacerbated by closure of the "Ingenieurschule Eisleben" (Eisleben School of Engineering) in 1994, which was a major institutional set-back for the whole region, leaving it without any institution of higher education. With the absence of a major scientific facility in the district, regional actors have difficulties establishing useful networks for exploiting the post-mining heritage and initiating new economic activities. These difficult framework conditions continue to hamper regional development.

The organisational capacities of the region have also in some ways proved inadequate to deal with the economic and social changes that have taken place since 1990. Over the past 20 years, the entire region has seen many administrative changes, with district and municipal boundaries shifting considerably. The Mansfeld-Südharz district in its current form has existed only since 2007. These processes have led to the merger of several historical and administrative regions with differing identities. This transformation has also been overshadowed by rivalry between the bigger towns, especially for the seat of district government. This situation has produced persistent administrative instability at both the local and regional levels. While the greater part of the district has a common history with regard to mining, in other matters it remains distinctly fragmented. Overall, these factors have reduced the planning potential and steering capacity of district government, resulting in a lack of common visions and strong leadership. One example of this problem is the formal networking between local authorities, especially in the form of the existing, municipality-based tourism associations. These parallel structures are marked by conflicting local interests that block the establishment of a joint regional marketing association that could develop a stronger marketing strategy for the region as a whole. Joint projects such as a region-wide "Kultur-, Tourismus- und Wirtschaftsförderungs-GmbH" (tourism and business development agency) have not yet been implemented even after years of discussion among regional stakeholders (Harfst et al. 2009; see also¹⁰).

As far as formal planning structures are concerned, the Mansfeld-Südharz district belongs to two planning regions, "Halle" and "Harz." Each has its own regional development plan. Since the district is at the periphery of these two planning regions and there is no overall

10 Mitteldeutsche Zeitung 5.3.2010 "Kultur und Wirtschaft getrennt gefördert" (retrieved via www.mz-org.de; 26.6.2010)

strategic concept covering the whole, the district's formal strategic planning capacity can be described as low. The only general planning instrument for the whole district is the 2006 "Integriertes ländliches Entwicklungskonzept" (ILEK, Integrated Rural Development Concept), which, however, excludes the region's core urban municipalities.

Despite fragmented power structures, the region has in the past shown strong potential for informal, project-based networking addressing particular issues and drawing on existing informal networks. The region has therefore been relatively successful in obtaining state funding for various projects.¹¹ The major coherent structure for cooperation in the district is the LEADER Action Group (LAG) ("Aktionsgruppe Mansfeld-Südharz"), which handles funding provided under the European Union's LEADER programme for rural areas. The programme has been financing projects in the region since 2003. The LEADER group Mansfeld-Südharz and its predecessors have realised 37 projects since that date at a total amount of about € 6.5 million. The main focus of the LAG is small and medium-sized enterprises and the touristic infrastructure. The group is an important interface for different ideas and actors in the district, especially because of its capacity to turn ideas into projects. Leading actors in the LAG are also associated with another important regional network – the management of the former mining company. This network includes actors such as official miner's associations, an important group concerned with the preservation of the mining heritage, as well as organisations such as the "Bildungswerk der Unternehmerverbände Sachsen-Anhalt" (BdU, Training Centre of Industry and Commerce in Saxony-Anhalt), which plays an important organisational role in applying for and running EU projects in the Mansfeld-Südharz region. Regional actors have recognised the connection between LEADER funding and other EU activities as a major regional development instrument. While participation in EU projects such as ReSource allows regional actors to develop innovative concepts, LEADER funding enables such ideas to be implemented. In general, reliance on LEADER underlines the project-based approach of the region's development efforts and has been the most important practical development tool in the region in recent years (Harfst et al. 2012). A thematic focus of the LAG has been the active promotion of tourism and post-mining potentials in the region, to be discussed in detail below.

Post-Mining Potentials as a Future Development Path?

Despite the region's heritage from mining and associated heavy industries, the Mansfeld-Südharz region is a rather attractive tourist destination, combining various landscapes forms with (low-key) cultural facilities. Of special importance for the Mansfeld-Südharz district is the

11 i.e. the MAGWELD project funded by the Federal Ministry of the Economy (BMWi) (www.magweld.de) or the "Demographic Change" project by the Federal Ministry for Urban and Regional Development (BMVBS) (www.region-schafft-zukunft.de)

legacy of Martin Luther, the Protestant Reformation leader, who was born and died in the town of Eisleben. The region's historical links with this historical figure can be described as the key touristic potential. It is accordingly exploited as the most important "brand" in touristic marketing for the Mansfeld area. The region's mining traditions are reflected in this overall strategy, especially because of Luther's own connections with the industry, his father having been a miner. The area is also known for fruit-growing and viticulture and also offers a wide range of leisure and recreation amenities (for example the lake area "Süßer See"). There are also cultural facilities of local, regional and even national importance (Lutherstadt Eisleben, Monastery of Helfta, Rosarium Sangerhausen, Industrial Tourism Destinations, Straße der Romantik¹²). Legacies of mining also mark the landscape (cone dumps as landmarks of the region) and some projects have preserved and developed the mining heritage for tourism.

The European Union's LEADER programme has enabled the region to fund projects concerned with mining, with the aim of developing the heritage into a touristic asset for the region by exploiting many of its cultural potentials. One such project has directly to do with mining legacies, namely the "Kupferspuren" project ("copper traces"). The project unites the cultural potentials of the mining heritage into a resource for regional tourism. The project was funded by the LEADER+ programme between 2005 and 2007. The idea was to collect and arrange mining-related information. An internet database was established to provide an information platform for planned touristic projects in the region.¹³ Another project combining mining traditions and tourism in Mansfeld-Südharz is the so called "Glück-Auf-Tour."¹⁴ It is embedded in the regional tourist project "Mitteldeutsche Innovationsregion" that focuses on industrial themes. While this project is managed by the "Tourism Association Wittenberg", the "Glück-Auf Tour" itself was established by the miners' association "Interessenverein Bergbau" in 1994. Important heritage and tourism sites advertised under this label are:

- Mansfeld Museum in Hettstedt, a technical museum and research institution on the history of Mansfeld copper mining (incl. replica of the first German Watt's steam engine)
- Mining railway between Klostermansfeld and Hettstedt, the oldest operating narrow gauge railway in Germany. Features original steam and diesel locomotives for touristic purposes running between the former mining sites in the region
- Röhrig-Schacht near Sangerhausen. Mining museum and show mine established in 1991. Visitors can take guided tours in the 300m deep shafts of the former copper shale mine
- Bergschulmuseum Eisleben, displays materials from the former mining school in Eisleben that was established in 1798
- Thematic hiking trails around former mining sites i.e. near Sangerhausen and Eisleben (Harfst et al. 2009).

12 www.kloster-helfta.de; www.industrietourismus.de; www.europa-rosarium.de

13 www.kupferspuren.artwork-agentur.de

14 "Glück Auf" = the common German miner's greeting, www.glueck-auf-tour.de/

Limits of Post-Mining Potentials in Structural Change

As shown, regional stakeholders have made great efforts to integrate post-mining potentials in the field of tourism. The aim has been to add to the touristic potential of the region and to preserve the regions mining heritage and identity. In addition to these touristic potentials, natural post-mining potentials are used in the generation of geothermal energy from mine water at the mining museum in Wettelrode (Fig. 4). The idea stems directly from experience gathered in the ReSource project. Other ways of utilising natural potentials have not been put forward to date.¹⁵



Fig. 4: Mine water as a geothermal potential – inside the "Froschmulden" drainage tunnel/district Mansfeld-Südharz (Photo: BdU)

Regional stakeholders have identified the region's potential on the domestic tourism market as one of the future development paths for the area. The strong "branding" potential ("Luther"), provides important access to a market dominated by strong trade names. Against this background, the mining heritage is seen as an important additional feature, providing a way to combine local identities with the development of tourism. Nevertheless, exploiting these cultural and touristic assets has so far proved difficult, and the full potential of the options has not been realised. The heritage of the Reformation leader is currently more closely associated with places like Wittenberg or Eisenach, both very successful in marketing their Luther heritage. The proximity of the well-established Harz mountain tourist destination also hampers development efforts, especially as establishing a joint and comprehensive touristic marketing concept for the Mansfeld-Südharz region has proved difficult. A major stumbling block has been strong local and regional antagonisms. The region's touristic marketing

¹⁵ One reason for this missing initiative might be the lack of orderly rehabilitated former mining site (heaps, dumps), which prohibits the use of such places for i.e. biomass production.

concept is accordingly based on the efforts of only single municipalities. This absence of coherent cooperation is a major obstacle, as the region has not managed to develop the tourist infrastructures needed to fully exploit its assets. The transition from an industrial to a service-based economy is proving a major challenge for all of the region's stakeholders and actors (Harfst et al. 2010).

Conclusion

The region of Mansfeld-Südharz contained one of the biggest deposits of copper shale in Central Europe and was therefore long an important mining district at the heart of Germany. The closure of the mines in 1990 has left the region struggling to cope with the outcome of this structural change.

In many senses at the periphery of economic development and without the infrastructure necessary to boost economic development, Mansfeld-Südharz has faced the usual problems of a post-mining region under particularly aggravated conditions. Low potential for endogenous growth, constantly high unemployment and very problematic demographic development have produced a difficult overall scenario for the future of the region. In the face of the reorganisation of administrative units and regional antagonisms, the region has been decisively hampered in developing a coherent strategic agenda for development even 20 years after mining ceased. With the exception of the focused rehabilitation programme "Major Ecological Projects," the region also lacks broader national support in coping with its post-mining legacy, and the formal regional planning capacity remains weak. This situation leaves regional and local actors in charge of reviving the region who are still struggling to find common ground for a joint development strategy. While many stakeholders in the region have recognised these problems, adequate measures to tackle them have not been forthcoming. Regional development thus relies mainly on projects funded by LEADER or national government. Some of these projects have identified and exploited cultural potentials from the mining heritage to improve tourism and preserve local pride and traditions. These project-based approaches have proved successful and have established links between regional actors. Such networks offer major potential for creating a stable, joint development strategy for the region's future and overcoming regional differences between actors. From this point of view, the existence of such informal networking structures is crucial: they have enabled important development projects to be realised in the district. This marks a definite step forward in regional development.

On the other hand, joint strategies are urgently needed to meet the challenges the region and its stakeholders will have to face in the future. Although some of the region's location factors are favourable and have recently improved (especially transport connections and a diverse regional economic structure), the general framework conditions under which regional development has to be realised are unfavourable: high unemployment, negative

demographic developments, and absence of institutions to facilitate endogenous growth (i.e. universities, research institutions) are issues that inhibit regional development. Demographic trends in Eastern Germany are towards re-urbanisation, which will strengthen/stabilize existing centres, while the periphery is set to lose population and related infrastructures. Regions such as Mansfeld-Südharz will come under additional pressure from these processes, which are likely to accentuate existing demographic difficulties. There is also a general trend away from active redistribution policies aimed at weaker regions such as Mansfeld-Südharz in Germany and in Europe as a whole. For such regions this could mean a further downturn in local economic activities and accelerated outmigration, which would severely hamper all regional efforts to invest in and exploit mining potentials and overall development options. The need to position a region in the national/global market through, for example, regional marketing, will become more important. This requires a shared vision and strategic concept within the region. If such a strategy is not developed and supported by regional actors, the region might lose further ground in economic attractiveness and investment opportunities. Continuing financial straits and demographic change mean that the region's problems are likely to remain severe.

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Sokolov-východ (Czech Republic) – From Open Cast Pits to New Landscapes

Introduction

The Sokolov-východ (Sokolov-East) Microregion¹ is a voluntary union of 14 municipalities. It is situated in western Bohemia in the Czech Republic, specifically in the Karlovy Vary Region in the Sokolov District and also marginally in the Karlovy Vary District. The microregion is characterised by continued open cast brown coal mining likely to cease in around 2035, its location on the Czech-German border, and the consequences of almost complete replacement of the population owing to relocation of the original German inhabitants after World War II.

The union of municipalities includes the towns of Březová, Chodov, Loket, Nové Sedlo, and Sokolov, and the villages of Dolní Rychnov, Hory, Jenišov, Královské Poříčí, Lomnice, Mírová, Vintířov, Staré Sedlo, and Šabina. It was established to initiate common action in promoting common interests and solving the problems of communities in the vicinity of open cast mines. The main problems are an unfavorable educational structure, increasing unemployment owing to the decrease in mining, the low identification of people with the area, and devastated landscapes that give the region a “black image.” Whereas the problems connected with landscape degradation are being dealt relatively successfully, socioeconomic problems are much more difficult to cope with.

Mining Past and Present

The Sokolov region is inseparably associated with brown coal mining. The first mention of brown coal in the area dates from 1642 (Frouz et al. 2007). However, the mining and use of coal are dated more than hundred years later (1772 Glück Auf Mine in Dalovice). A total of

¹ The term Microregion Sokolov-východ is used both to refer to the legal body of a voluntary union and the area of 14 member municipalities of this union; whereas, the broader area affected by mining is referred to as the Sokolov region.

216 mines have been in production to date (see Valášek & Chytka 2009). Local brown coal was initially used to produce chemical products (sulphuric acid, dyes) and later for combustion. As a result, many chemical enterprises developed (in Sokolov, Staré Sedlo etc.). Later, with the rapid increase of mining output, power plants and briquette factories were built. In the second half of the 19th century, railway construction (the Buštěhrad Railway) contributed to the development of mining (e.g. Smolová 2008, Frouz et al. 2007) because it expanded the possibilities for transporting coal not only within but also outside the country. From about 1850, mining companies gradually came into existence. A group of six enterprises was involved, in which the biggest shareholder was Earl Nostic (Frouz et al. 2007). Output increased steadily. By 1886, the million ton mark was reached. Just before World War I, some 4 million tons of coal was being produced annually in more than 50 underground mines.

Coal mining triggered the industrial development of Sokolov and the surrounding region. It meant the demise of the traditional agricultural nature of the landscape. In 1782, a porcelain factory was set up in Chodov, to be followed by factories in Loket, Loučky, Stará Role, and Březová. Other important industries in the area were glassmaking (Bružeňák 2010), mechanical engineering, and constructional production.

The Sokolov region is in the so-called Sudetenland, where the German population had predominated since the 12th and 13th centuries (great colonization of the Czech borderland). However, in the late 19th century job opportunities in mining and industry induced Czech families to immigrate from the interior. A powerful Czech minority thus emerged in the region. The more or less correct relations between Czechs and Germans lasted until World War I. After the war, a majority of Germans were dismayed by the break-up of Austria-Hungary and the emergence of Czechoslovakia and became involved in preparations for a Deutsch-Böhmen province. The situation eased only in the latter half of the 1920s. The world depression had a more marked effect on the Sokolov region than on other parts of the country. Even the extraction rate increased (from 4.4 mil. t in 1920 to 3.3 mil. t in 1930, see Valášek & Chytka 2009). Unemployment soared and social tensions increased, especially after Hitler seized power in neighbouring Germany. In a few years the Henlein party took control over both town and district. Prior to occupation by the German Reich in 1938 Czechs, German anti-fascists and Jews left Sokolov (Vaishar et al. 2010).

After the war, 25% of the town had been destroyed by bombing. There were even plans to renounce reconstructing Sokolov and abandon the entire town site to coal mining. About 80% of the original German population were transferred to Germany. In Sokolov, the number of compulsorily transferred Germans is estimated at 8 thousand. Their property was confiscated and new settlement initiated. Czechs who had lived there before the War, immigrants from the Czech heartland as well as re-immigrants and immigrants from different European countries came to the region. However, the population has still not reached the level of before World War II (see Fig. 1).

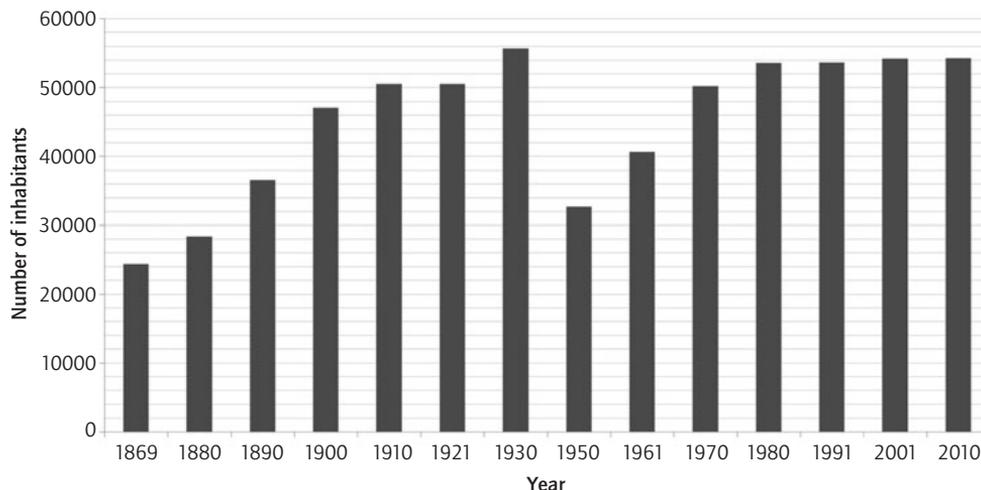


Fig. 1: Demographic development in Sokolov-východ Microregion municipalities 1869-2010
(Source: Czech Statistical Office, Prague: Historic lexicon of Czech municipalities, own compilation)

In 1945, all active 24 deep and 14 small open cast mines were integrated into *Československé doly Praha* (Czechoslovak Mines Prague) and thus nationalized. The post-war economy was characterized by rapidly increasing mining output (5.8 mil. t of coal extracted in 1950, 14.2 mil. t in 1960, 19.5 mil. t in 1970) and intensive industrialization. In the 1950s and 1960s there was massive construction of new prefabricated blocks of flats for industrial workers. In the mining district chemical plants were established in Sokolov and Vřesová. The energy sector set up plants in Vřesová and Tisová. Starý Chodov was almost completely demolished to make way for housing development to accommodate workers at the fuel processing plant in Vřesová and the Chodos engineering company, a producer of presses for the rubber industry. The agricultural character of Březová was changed by a vast housing development for glass-making factories and mines in Dolní Rychnov. Coal mining and the manufacture of glass and china also markedly altered the character of Nové Sedlo.

Initially, only underground mining took place in the region and it was not until after World War II that the open cast method began to dominate. The highest output figure (22.6 mil. tons) in the Sokolov Basin was achieved in 1983. In that year, one underground and eight open cast mines were in operation (Valášek & Chytka 2009). The open cast mines radically changed the landscape in the Sokolov area.

The gradual integration and closure of inefficient deep mines resulted in 1965 in the creation of ten independent state companies integrated in a national corporation *Hnědouhelné doly Sokolov* (Sokolov Brown-Coal Mines). After 1990 all activities were concentrated in the hands of three state enterprises which merged to form *Sokolovská uhelná, a.s.* in 1994. The company was fully privatised in 2004 (Frouz et al. 2007) and today operates as a single

mining company in the region under the name Sokolovská uhelná, právní nástupce a.s. (Sokolov Coal, Successor in Title, Joint Stock Company, hereinafter referred to as Sokolovská uhelná). Only one mine, Jiří, is still in operation and the Družba Mine (see Fig. 2) is planned to operate after the closure of Jiří. Since 1983, output has been decreasing (16.5 mil. t in 1990, 11.2 mil. t in 1995, 10.3 mil. t in 2000, 10.4 mil. t in 2005, and 8.4 mil. t in 2010).²



Fig. 2: Družba Mine (photo: Lipovská 2011)

Regime change in 1989 brought changes to energy and economic policy and the partial absorption of mining. Furthermore, the reclamation of degraded landscapes was initiated on a larger scale. According to Czech law, mining companies are responsible for reclaiming areas devastated by mining. In fact, the obligation of mining companies to reclaim land degraded by mining goes back to the times of Maria Theresia (Voštová & Růžička 2000).

Approaches to landscape restoration have varied significantly over time. Even in the early fifties no experience had been gathered in this field and first efforts focused only on restoring agricultural land affected by subsidence caused by deep mining. The focus shifted later to reclaiming mine dumps through afforestation, mainly using pioneer species, especially alder, poplar, and acacia (Vráblíková 2008). In sixties, very valuable humic soil profiles began to be salvaged. The soil was then available for the agricultural reclamation of mine dumps. However, this approach proved a dead end: even after thirty years, a sufficient degree of fertility has not been achieved. In forest reclamation, not only pioneer tree species but also economically valu-

2 Economic reports of Sokolovská uhelná

able, so called target species were used. In this period, site conditions were already being significantly modified by landscaping and backfill using humous soil. In the seventies and eighties, a disproportionately high share of agricultural reclamation was enforced by state authorities. The nineties saw the ecologization of the whole reclamation cycle. This was reflected in a preference for forest reclamation, the balancing of forest, agricultural and aquatic ecosystems, and the creation of a territorial system of ecological stability³ (Štýs & Braniš 1999). Moreover, the nineties brought an increase in the number of institutions undertaking design work and reclamation work. Mining and reclamation activities began to be influenced by the mechanisms of the market economy. The late 20th century focused on the landscape ecological restoration of large territories (Vráblíková 2008). Recently, the social demands made of future land use have been of significant importance, mainly in specific reclamation projects (Rothbauer 2003).

The Sokolovská uhelná subsidiary, Rekultivace Sokolov (Sokolov Reclamation), is responsible for all reclamation activities in the region. The total area affected by mining in the Sokolov region is almost 9,300 ha. By late 2010, 38% of this area had been already reclaimed, in 29% reclamation was in progress and in planning for the remaining 33%. As shown in Fig. 3, the share of agricultural reclamation is decreasing while forestry and water reclamation is becoming more important.

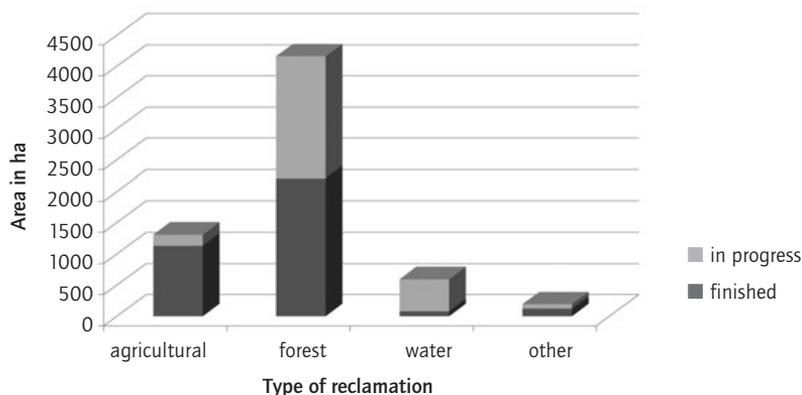


Fig. 3: Proportion of reclamation types – state to 31.12.2010
(Source: Sokolovská uhelná – Economic report for the year 2010)

In the Sokolov region as in other Central European countries (esp. Germany), there is a trend towards hydric reclamation. The reasons for this development are purely pragmatic: quarries require continuous draining. Since this is very expensive, flooding is considered the cheapest

3 Mutually interconnected set of natural as well as modified but close-to-nature ecosystems that preserve the balance of nature

method of reclamation. Moreover, the method is regarded as natural and a very promising way to exploit surface mining sites (e.g. Šípek 2006). Historical continuity is often evoked in this connection, because there were many water bodies in the North Bohemian Coal Basin until the mid-19th century.

Apart from the economic advantages, water reclamation also provides the basis for recreation, tourism, fishing, and other activities. Thus the creation of water bodies is usually supported by both mining companies and the authorities in mining regions. Besides, new lakes often provide the springboard for many socioeconomic projects such as sandy beaches with recreation facilities, sports centres, open-air museums, entertainment centres featuring old mining machines, etc.

In the Sokolov region, hydric reclamation projects have already produced a number of water bodies. Two smaller lakes near Habartov are used for fishing and summer recreation. Two natural swimming pools, Michal (in the vicinity of Sokolov) and Bílá Voda (between Vřesová and Chodov) serve the recreational needs of local people. However, the main project in the area is the Lake Medard project, the complex renewal of a post-mining area and the transformation of devastated land into an attractive site for tourism and cultural and other activities centred on Lake Medard (almost 500 ha). The eastern part of the area will focus on recreation and cultural uses (new areas and facilities for water sports, sports centre, various forms of recreational accommodation, bathing and marina facilities, mining museum including an open-air museum and a center for concerts and other cultural events), while the western part is expected to focus on culture, art, education, science, and research (university facility focused on landscape restoration, botanical garden). The last large residual pits to be left after the Jiří and Družba mines cease operation are expected to be flooded. A more than 1,300 ha lake containing more than 500 million m³ of water should thus come into existence.

Other Sokolovská uhelná reclamation projects also focus on recreation. In eastern Silvestr near the village of Dolní Rychnov an 18-hole golf course has been laid out on an almost 100 ha site. Another interesting project has been implemented at the Podkrušnohorská dump near Lomnice. The so-called „Ježkova“ nature trail has been built to provide information about the ecological specificities of mine dumps and the patterns of their natural development. A vast arboretum has also been created at the Antonín mine dump near by Sokolov.

Regional Development Strategies

A number of strategic planning documents have been elaborated in the region. The latest, a “master plan” was produced in the context of the ReSource project itself. The main aim of regional strategy is to find substitutes for mining, hitherto the mainstay of the regional economy. Regional development strategies envisage diversifying the economy towards services, various industry sectors, and energy.

Although most jobs are expected to be created in the services sector, it is assumed that industry will remain important in the region. New enterprise zones are therefore being planned. The mining company and the municipalities in the microregion are the main initiators. One enterprise zone is already being established near Nové Sedlo. Nevertheless, a clear vision for their development is still lacking. One idea is to specialize in sectors traditional to the region: chemicals, glass, ceramics, engineering, and wood processing.

Another prospective activity is waste processing. Regional waste management strategies are based on increasingly stringent requirements for waste treatment. The core of this strategy option lies in the construction of complex waste processing structures (waste sorting, waste processing, recycling, new technologies for new products from recyclable raw materials). The unsortable components of waste would be fired in the Vřesová power plant. Sokolovská uhelná, which owns the plant, is planning to enlarge waste combustion capacities at Vřesová.

Post-mining potentials constitute an important basis for some regional development strategies in the Sokolov-východ Microregion. One use to which post-mining land can be put is the production of alternative energies. This perpetuates the regional tradition of energy supply. Moreover, new energy sources would mean an important shift to sustainable development. Strategies and visions focus on hydroelectric power, biomass, photovoltaics, and heating stations on lakes. Hydroelectric power plants and heating stations are under discussion for the now flooding Lake Medard and water bodies to come from the flooding of two remaining mines, Jiří and Družba. Furthermore, the use of biomass appears promising as this energy source is considered to have the greatest potential of all renewable energy sources under Czech conditions. Moreover, dump soil usually cannot be used for food production. In fact, research has already been conducted with considerable success on planting biomass on mine dumps in the Most region of the Czech Republic (e.g. Ušťak & Mikanová 2008). Another possible variant in the post-mining area is photovoltaics, but this does not have the energetic potential of biomass in the region due to the lack of solar radiation. Quite a new approach is geothermal energy from mine water. Some studies have already been carried out in the Czech Republic (e.g. in the projects Potential of Geothermal Energy Utilization from Coalmine Waters in the Czech Republic and Exploration of Raw Material and Energy Use of the Potential of Mine Water in Flooded Uranium Mines). The geothermal energy study in the Sokolov region is planned in cooperation with the Mansfeld-Südharz region under the ReSource project (see the relevant chapter in Part II of this volume). Renewable energy sources can be expected to enjoy a considerable future with increasingly demanding requirements for reducing carbon emissions. However, it will depend not only on regional strategies but mainly on the national energy concept and accordingly on funding for the individual energy sources.

Regional development strategies also count to some extent for the use of cultural mining potentials. The Medard project presented above focuses particularly on this issue. An open-air museum of mining incorporating mining infrastructure (railways, old mining machines) is planned near Lake Medard. An amusement centre with old mining machines is also being

considered. The Bernard project (see Fig. 4), which has already been realized, involved the reconstruction of an old grange and constitutes a successful example of cultural potential use. The building, once used to supply a historic mining company was reconstructed and converted into a crafts and cultural centre for the area.



Fig. 4: Crafts and cultural centre Bernard Grange near Sokolov (photo: Lipovská 2011)

As mentioned in part I of this volume, many post-mining regions try to develop tourism, and the Sokolov-východ Microregion is no exception. It is generally known that tourism relating to mining can never bring the economic benefits created by mining or replace all the jobs lost. However, it can contribute to the development of tourism as an alternate economic activity (Conlin & Jolliffe 2011). The cultural potentials of the mining heritage can be one stepping stone in development. Besides the cultural heritage, newly reclaimed areas (water bodies with recreational facilities, forests) and natural heritage (protected landscape area Slavkovský les Forest) are envisaged as a basis for tourism. The construction of a sports and recreation complex is expected to encourage young and educated people to stay in the region.

The development of education is one of the most important strategies for changing the character of the region. The region's educational structure has hitherto been unfavourable (see Tab. 2). This has to do with low skill requirements coupled with relatively high wages in the mining sector. The development of education is thus needed to change employment structures (mainly from mining to services). Indeed, development is needed both in traditional education (secondary and university education) and in retraining. It would be useful for educational institutions to focus on fields relevant to the region (engineering, renewable energy sources, reclamation, rescue services etc.) and to take advantage of the border location to establish bilingual schools and organize exchange programmes with Germany. An ambitious

project that could bring great benefits for the region is the Regional Multifunctional Centre of Integrated Rescue Services, a multi-purpose complex meeting the training needs of both the integrated rescue system and volunteer rescue workers. Such a complex centre for rescuers is still lacking in the Czech Republic; the new centre could prove to be of great national importance. The location near Lake Medard could also favour the success of such a project.

Another important strategic field for the region is research and development. The management of the microregion foster the establishment of applied research centres in fields relevant to the region – e.g. as a part of the Regional Technology Centre. The areas of interest should be in line with other strategic options. This means that research should be mainly in engineering, small hydro-electric power stations, testing heat pumps in water-water systems, reclamation and ecological succession, tourism, regional development, and information technologies. Other regional strategies address support for small and medium enterprises, services for senior citizens, and a higher standard of living.

The success of re-structuring largely depends on human capital and its capability to create and implement visions. The Sokolov-východ Microregion, a voluntary union of municipalities, appears to be very active in developing visions and strategies. Another active body is the local action group⁴ Sokolovsko, o.p.s., covering a markedly larger territory than the microregion. However, the two are backed by similar actors, the driving force for all development in the microregion. The Sokolovsko local action group has accepted an integrated strategy defining the main goals for development of the microregion. The main priorities are the quality of life, the restoration of monuments, the development of tourism, human resources and employment, and the promotion of partnerships.

As already mentioned, one of the most important actors in the region is the mining company Sokolovská uhelná. In fact, it is the only truly regional stakeholder because it is the most powerful economic entity in the entire Karlovy Vary Administrative Region and, moreover, owns a significant proportion of the land in the Sokolov region. Most plans can therefore not be implemented without its support. On the one hand, the company's activities in the territory are welcomed, since it is the biggest local employer, engages in successful reclamation, and supports educational, medical, cultural, and sports organizations and events. Likewise, it is appreciated that privatization placed the company in the hands of people with local roots and therefore a personal interest in improving the situation. On the other hand, there is a significant communication problem between Sokolovská uhelná and the microregion. Although attempts are made to discuss common problems and visions, the motives and preferences of the two sides largely differ. While the microregion represents public administration acting in

4 Local action groups are the mainstay in implementing the leader approach; they are composed of public and private partners from the rural territory, and must include representatives from different socio-economic sectors. They receive financial assistance to implement local development strategies, by awarding grants to local projects.

the public interest, coordinating and implementing regional development, the mining company is a typical representative of the private sector driven mainly by economic considerations. Reaching agreement is thus almost impossible. From the point of view of the microregion management, the company executives behave like modern nobility who believe that they can decide the future of the region regardless of what local people think. They tend not to support projects that are not economically self-supporting. Touristic projects have a particularly hard time, since the company does not consider tourism capable of even partially replacing lost jobs.

The Karlovy Vary Region plays an important role in regional development. It is an indispensable actor, being highly involved in deciding where to locate projects in the region. Most projects in renewable energy, research and education, etc. depend on support from the region. Fortunately, the Sokolov region is seen as an important area from the perspective of future development.

As far as cross-border cooperation is concerned, the Sokolov district, together with other three districts in the CR (Karlovy Vary, Cheb, Tachov) and the relevant German territorial entities in Saxony and Bavaria form part of the Euroregion Egrensis. This partnership has not, however, proved very beneficial to date. To establish contact, exchange experience, and get to know the neighbours, direct cooperation between partnering towns or municipalities (e.g. Chodov and Oelsnitz/Erzgebirge in Saxony) may be more beneficial, although even this has so far failed to have any direct economic effects (Vaishar et al. 2010). Körner (2008) assumes that not even direct neighbours in this area (Kraslice – Klingenthal) can be expected to significantly strengthen their positions as centres of their catchment areas. In sum, cross-border cooperation has failed to deliver the expected contribution to development of the microregion.

Discussion of the State of the Region

Very positive and unusual for a region where mining is being phased out is the positive demographic development (see Fig. 5 and Tab. 1) of the Sokolov–východ Microregion. The microregion as a whole showed a slight population increase (267 persons) between 2006 and 2010. Only the four largest towns and the municipality of Vintřív saw a population decrease over this period. The highest increases were in the rural communities of Jenišov (78% in 2006 – 2010), Mírová (about 30%) and Hory (13%). These municipalities are growing mainly due to the suburbanization effect of the nearby spa town of Karlovy Vary. With the exception of Březová, the average age of residents in the villages of the microregion is more favourable than the national average.

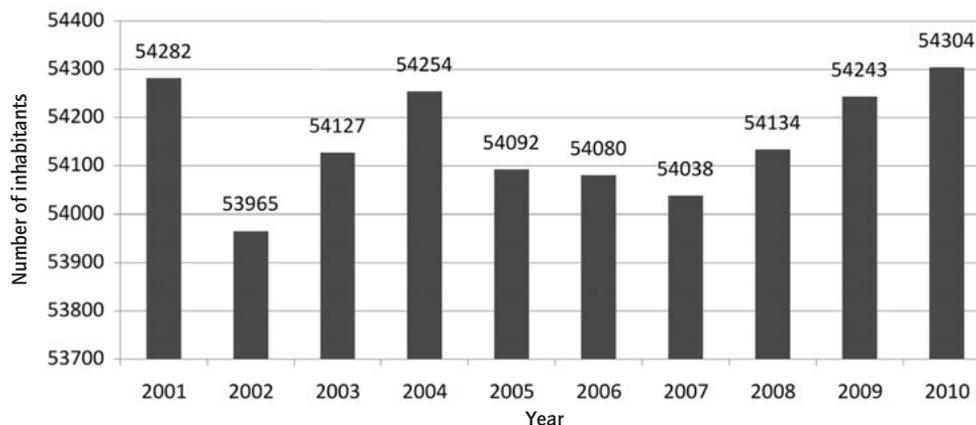


Fig. 5: Demographic development in Sokolov-východ Microregion municipalities 2001-2010
(Source: Czech Statistical Office, Prague)

Tab. 1: Demographic development in Sokolov-východ Microregion municipalities 2006-2010
(Source: Czech Statistical Office, Prague)

Municipality	Natural movement balance	Migration balance	Total of inhabitants	2006 – 2010 relative development in ‰
Sokolov	162	-339	-177	-7.2
Chodov	153	-452	-299	-20.7
Loket	61	-62	-1	-0.3
Březová	-31	19	-12	-4.4
Nové Sedlo	31	-15	16	5.9
Dolní Rychnov	29	49	78	56.2
Vintřřov	31	-33	-2	-1.7
Lomnice	2	52	54	46.8
Královské Pořřčř	25	57	82	105.1
Staré Sedlo	11	23	34	43.9
Jeniřov	40	321	361	781.4
řabina	-5	46	41	150.7
Mřřrová	3	64	67	297.8
Hory	4	21	25	126.9
Total	516	-249	267	4.9

As far as accessibility and location are concerned, the microregion can be seen as peripheral, lying as it does on the national border. However, this can be an advantage for cooperation with Germany (both Saxony and Bavaria are about 35 km away from Sokolov). The role of the future motorway D6 Prague – Bavaria can also be interpreted in different ways. It may offer

potential for better cooperation with Germany or the risk of the region becoming only a transit zone. Positive aspects of the microregion's location are proximity to the regional centre Karlovy Vary and its position within the Czech "spa triangle" (Karlovy Vary, Mariánské Lázně and Františkovy Lázně).

Strengths of the region that foster tourism and enhance the regional image are, under the heading cultural heritage, the historic town of Loket and, under the heading natural potentials, the protected landscape area Slavkovský les Forest. As we have seen, the potential for renewable energy sources (biomass cultivation on stockpiles, use of geothermal energy from mining water) can bring positive changes to the region and thus transform the black image of the region into that of a green, sustainable region. The long tradition of glass and porcelain manufacturing provides another strength of the region.

On the other hand, certain weaknesses hamper development in the microregion. Most importantly, the Sokolov-východ Microregion suffers from the typical problem of mining regions – growing unemployment.

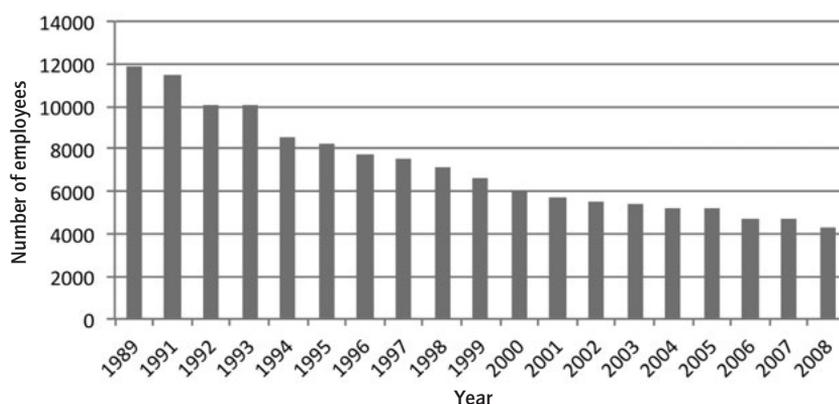


Fig. 6: Employment development in Sokolovská uhelná mining company 1989-2008
(Source: Statistical yearbook of Sokolovská uhelná)

The only mining company in the Sokolov region, Sokolovská uhelná, employed 4,440 people in 2010 and an estimated 6,000 in downstream sectors. From 1994 to 2010 the number of employees decreased by nearly half (from 8,709 to 4,440) and it is declining every year (see Fig. 6). The unemployment rate in the Sokolov District is already well above the national average (see the introduction to part II).

Unemployment is due not only to the decline in mining activity but also to the educational (see Tab. 2) and social structure of the local population. Typically, people in the microregion have either completed an apprenticeship (including secondary vocational schooling without the general certificate of education) or have only basic education (often not completed). The proportion of people who have not completed school is above average (microregion 0.9%

vs. CR 0.4% in 2001). The proportion of people to have completed secondary, vocational and university education is below the national average (Vaishar et al. 2010). As mining has declined, many people have lost their jobs and have difficulty finding work in another field because of their poor qualifications.

Tab. 2: Educational structure of the microregion compared with Czech Republic in 2001
(Source: according to the population census 2001, Czech statistical office Prague)

Educational level	Microregion Sokolov-východ [%]	Czech Republic [%]
No education	0.9	0.4
Basic education	30.3	23.0
Completed apprenticeship	38.9	38.0
General certificate of education	21.5	24.9
Advanced vocational training	2.4	3.5
University	4.7	8.9
Not identified	1.4	1.3

From the point of view of social structure, the region has a significant proportion of Roma. The Roma minority has an even lower level of education than the rest of the population, which reduces their chances of employment.

Another human-potential problem is the low identification of people with the area. That is due to the almost complete substitution of the population after World War II. As we have seen, the vast majority the original German population was transferred to be replaced mainly by Czechs from all over Czechoslovakia and returning from other European countries. In the 1950s and 1960s, many people arrived to work in mining-related industries. Moreover, as co-operative farms were established at a very early stage in the region, new local residents did not bond with the land, and the consequences are visible. What is more, brown coal mining and downstream industries had a very negative impact on all components of the environment and landscape (pollution, "moonscape"). The Sokolov region was known as a "black region" and this negative image persists.

Despite this "black image", the appearance of the region is changing radically. Completely different landscapes are coming into being through hydric, forest and specific reclamation. Reclaimed areas can be seen as a major advantage to the region as they create the conditions for developing recreational and tourism amenities. Most importantly, changing landscapes can change the regional image. Particularly the Medard project, involving flooding of the Medard mine, is expected to offer considerable potential for attracting tourists and to symbolize the new face of the region.

It is new ideas and visions that will provide the basis for developing the microregion. The microregion management can be said to be very active in developing such visions. However, cooperation among all actors is needed to give life to them.

Conclusion and outlook

European mining regions where mining is coming to an end face a fundamental structural crisis with three typical aspects: (1) environmental degradation of the landscape, (2) a crisis of the entire economic basis of the region and (3) high unemployment with all its associated social problems (Wirth & Lintz 2007). The Microregion Sokolov-východ demonstrates all three characteristics: (1) open cast mining has caused irreversible changes to the landscape of the Sokolov region. "Moonscapes" covering dozens of square kilometres came into being in the region during mining operations. Furthermore, industry caused pollution throughout the environment. (2) Mining is still the dominant sector in the region. Its decline thus means the decline of the whole regional economy. It is very difficult to find new paths to economic development and to attract new industry and business. (3) The Sokolov-východ Microregion already suffers from high unemployment and the cessation of mining is exacerbating the problem.

On the other hand, the Microregion Sokolov-východ has not yet had to deal with the problem of depopulation. As a rule the out-migration rate in post-mining regions is high (Wirth & Lintz 2006), parts of the work force typically moving from post-industrial regions to other regions (Eckart et al. 2003). The opposing trend is apparent, however, in the Sokolov-východ Microregion: the population is increasing, albeit slowly. This is due to the suburbanization effect of the regional centre Karlovy Vary. A typical example is the community of Jenišov situated in the immediate vicinity of Karlovy Vary, which is the fastest growing municipality in the Karlovy Vary Administrative Region (78% growth of population between 2006 and 2010).

Other positive aspects of the microregion are its location and accessibility. Extremely important factors are its proximity to the regional centre of Karlovy Vary; its position within the "spa triangle," advantageous for the development of tourism; and the border location allowing cooperation with Germany. Great potential is also offered by natural protected areas, "free" post-mining sites available for activities difficult to accommodate elsewhere (e.g. biomass, extreme sports etc.), the mining heritage, and the long tradition in certain industries (glassmaking, porcelain).

The situation of former mining areas allows almost completely new landscapes to be created in keeping with the ideas and demands of the present day. Some projects have been adopted and some even realized. Preliminary experience has been positive. It remains to be seen whether the activities undertaken to date offer sufficient potential for coping with the expected worsening of the social situation in the microregion.

The most important precondition for exploiting all potentials is strategic planning. Strategies should ideally be adopted in agreement with a range of stakeholders. In the case of Sokolov-východ, the management of the microregion and the Sokolovská uhelná mining company are both considerably active in strategic planning. Nevertheless, the poor cooperation between the two stakeholders is a major problem, since their views differ substantially.

In sum, the Sokolov-východ Microregion faces the typical problems of post-mining regions. The region can therefore learn a great deal from the experience gained in post-mining regions that have faced similar developments, helping it to develop strategies in advance of the complete cessation of mining itself.

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Steirische Eisenstraße (Austria) – The Region Surrounding an Outstanding Mining Landmark

Introduction

The terraced Steirische Erzberg (Styrian Iron Mountain) and the city of Eisenerz together constitute one of the most important identity-forming symbols for mining and mining-related industries in Austria. Next to salt mining, the exploitation of iron ore in the Eastern Alps is the only branch of mining of nationwide cultural, historical, and economic significance (Lichtenberger 2002). This report investigates the region around this outstanding mining landmark (see Fig. 1) and the effects of the rise and fall of mining and related industries.

The Steirische Eisenstraße (Styrian Iron Route) is a non-historical term for both a regional association (Verein Steirische Eisenstraße) and one of the 19 official LEADER regions in the state of Steiermark (Styria). These two organisations differ to some extent in composition and extent. (cf. Land Steiermark 2007; Verein Steirische Eisenstraße 2007). As the LEADER region coincides more closely with old and more recent mining areas and areas affected by mining, this classification is used. Moreover, not all the municipalities involved have been equally affected by mining and related industries. Four zones can be identified (cf. Land Steiermark 2007):

- the **industrial zone** to the south east (Leoben, Niklasdorf)
- the **central commuter belt** (St. Peter, Proleb, Hafning, Trofaiach)
- the **hinterland** to the north (center of mining: Gai, Radmer, Vordernberg, **Eisenerz**, Hieflau)
- the **transport and traffic axis** to the west (Gaishorn, Treglwang, Wald a. Schoberpass, Kalwang, Mautern, Kammern)

We focus on the municipality of Eisenerz, which suffered most from the general decline of mining and the industries relating to it.

Administratively the region is situated in the districts of Leoben (93% of the total area) and Liezen (7%) in Styria. In the cultural landscape of Styria, the Steirische Eisenstraße is part of the Obersteiermark macroregion and embraces the microregions Obersteirischer Zentralraum

(former industrial centre of Austria), Region Erzberg, Aflenzler Land and Tragösser Tal, Paltten- and Liesingtal, Eisenwurzten and Gesäuse. (cf. Umwelt-Bildungs-Zentrum Steiermark 2009)

As far as the surrounding natural landscape is concerned, the region is in the northern part of the Nördliche Kalkalpen (Northern Limestone Alps) and the Grauwackenzone (Greywacke Zone) to the south. On a smaller scale, the Eisenerzer Alpen (Eisenerz Alps) are the principal mountain range in the area under study. Some parts of the area are covered by the Niedere Tauern (Lower Tauern), the Gleinalpe, the Mürztaler Alpen and the Hochschwabgruppe.

Mining Past, Present, and Future

Since the Bronze Age, copper and some salt has been mined in the region. Despite the legend, which gives 712 as the year in which ore mining began, the first reliable evidence of mining on the Erzberg dates from the 11th century (Sperl 1984). Before the 19th century, the region was a European pre-industrial centre for iron production and manufacture. During this first heyday for mining and decentralized small-scale industries, iron products were sold as far abroad as Russia and Ottoman Empire. The rise of better accessible iron and steel production on the basis of hard coal in other countries plunged the region into a first crisis (Lichtenberger 2002). Railway links (Südbahn from Vienna to Trieste and the regional line Leoben-Vordernberg) and technological innovations in the second half of the 19th century boosted the industrial development of the region. In close association with the Erzberg, an ore-processing cluster developed around the city of Leoben (Donawitz), giving rise to the industrial centre of Austria, the "Mur-Mürz-Furche" (Sperl 1984; Lichtenberger 2002; Puchner 1999). Employment and ore extraction peaked in World Wars I and II (1940: 7188 employees and 2.8 m. tons of iron ore) and in the 1970s (1974: 2553 employees and 3.76 m. tons) (VOEST Alpine Stahl 2006). The decline in ore mining at Eisenerz started with globalization of the resource market in the 1960s (Gschöpf 1992). Ore from abroad had a higher iron content and was much cheaper (Schmied 1999; Lichtenberger 2002). Only modern extraction methods, the production of high-tech and high-quality steel products in Leoben and Linz by the VOEST Alpine (Jülg 2001), and drastic job cuts prevented the abandonment of active mining (Bundesministerium für Wirtschaft und Arbeit 2003). In the decade 2000-2010 about 200 people were employed on the Erzberg, where an average of 2 million tons of iron ore were mined per year, a still high average (Bundesministerium für Wirtschaft und Arbeit 2008; VOEST Alpine Stahl 2006; Zimmermann & Janschitz 2005). The estimated cut-off date for active mining varies from 2020 (VOEST Alpine Stahl 2006) to 2040 (Puchner 1999).



Fig. 1: The terraced silhouette of the Styrian Iron Mountain with Eisenerz in front
(Source: Bavaria Luftbild Verlags GmbH)

Underground excavation predominated in the early days, to be gradually replaced by open cast mining in the 19th century. The last underground mine closed in the 1960s. The intensification of open cast mining in the late 19th century, during World Wars I and II, and during the economic growth of the 1960s and 1970s shaped the spectacular silhouette of today (Zimmermann & Janschitz 2005; see Fig.1)

Related industries and infrastructure include the Montanuniversität Leoben (Mining University Leoben), various enterprises producing construction machines (such as the Maschinen-Service Erzberg GmbH), and the VOEST Alpine Bahnsysteme GmbH & Co KG (railway construction). Demographic decline has led to major job losses in other branches such as the catering trade and retailing. The dominance of the big mining and industrial company VOEST Alpine, which suffered from severely falling ore prices and the industrial crisis in the late 80s, hindered small and medium sized enterprises from setting up in Eisenerz (Schmied 1999). This is one reason for the precarious situation today.

Effects of Job Losses in Mining and Industry

Due to the decline of ore mining in Eisenerz and the related heavy industry in the Upper Styrian Central Region (Mur-Mürz-Furche), the population declined strongly both in the region as a whole (-21% from 1981-2009) and in the municipality of Eisenerz (-48%, see Fig. 2). The loss of nearly the half population in the municipality of Eisenerz is due to the area's disadvantageous location and accessibility (Janschitz and Zimmermann 2004; Lichtenberger 2002) in the heart of the Eisenerz Alps and the Hochschwabgruppe, the bad labour market situation, and the resulting negative migration and birth balance (cf. Janschitz and Zimmermann 2004).

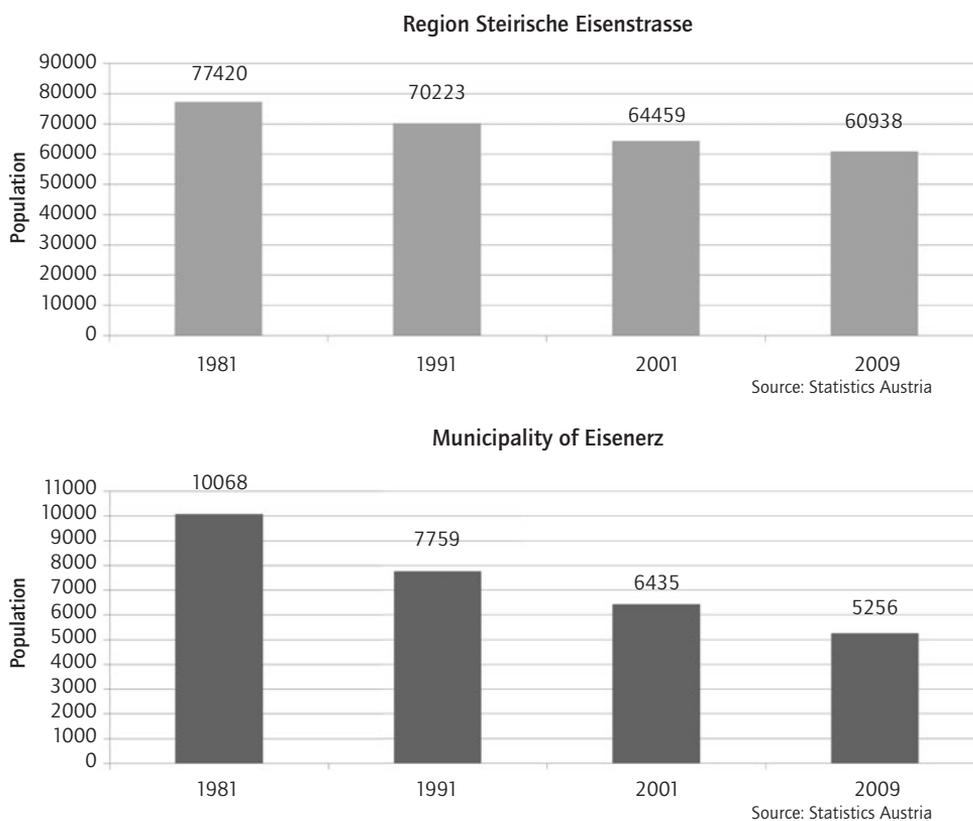


Fig. 2: Population development 1981-2009 in the total region and in the municipality of Eisenerz (centre of mining)

A look at population changes since 1910 shows that developments are much more dramatic (see Fig. 3). After peaking in World War II, the population fell by nearly 60%. In population density (57.6 inhabitants per km² 2009) the region is not comparable to the national average (99.5%) because of its alpine character with little permanent settlement area.

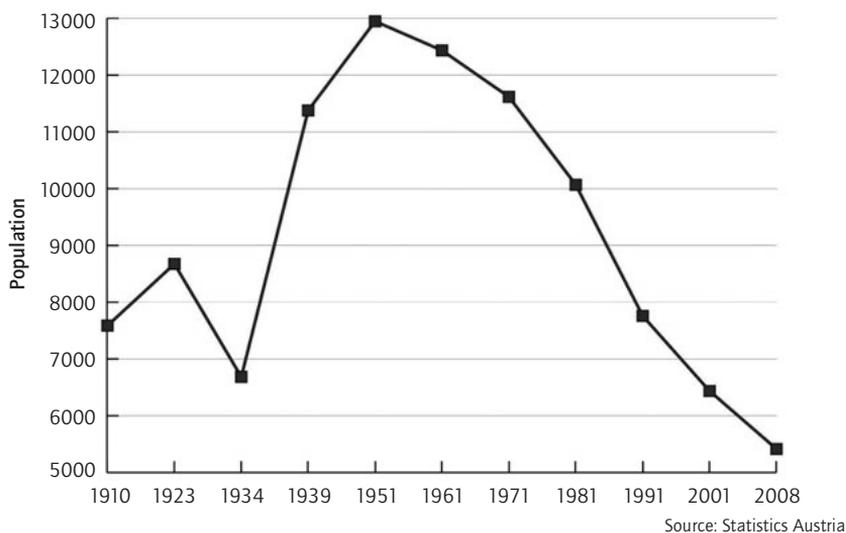


Fig. 3: Population development 1910-2008 in the municipality of Eisenerz
(Source: Ortner 2009)

The population development by age group (Fig. 4) shows a picture typical for a declining region. Compared with the national average (2001 16.8%) the share of the group of under 15-year-olds is very low in the total region (13.3%) and especially in the municipality of Eisenerz (10.2%). Though development followed the general demographic trend from 1981 to 2001, change in the region is more dynamic. The trend is more dramatic for the over-65 age group. In comparison to the national average, constant from 1981 to 2001, the share of older population in the region increased considerably (total region: +4.9%; municipality of Eisenerz: +11.2%). 2001 20.8% of the region's population was over 65, again exceeded by the municipality of Eisenerz with 28.7%.

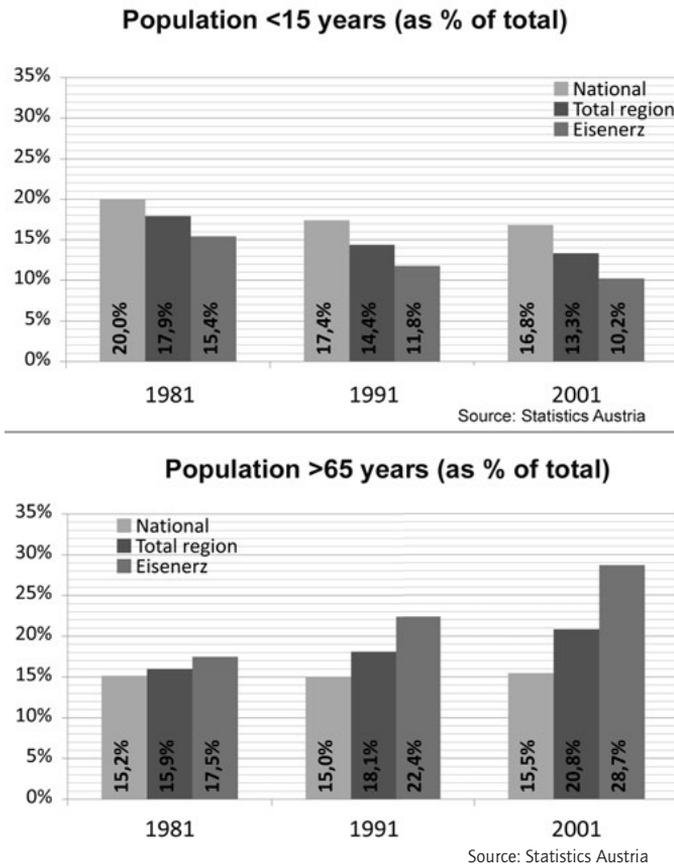


Fig. 4: Development of the population structure 1981-2001 in Austria, the total region and the municipality of Eisenerz

As in demographic development, the Steirische Eisenstraße shows economic structures typical of a declining industrial region. Unemployment is high in the region (1991: 7.7%) and especially in the municipality of Eisenerz (peaking in 1991 at 12.1%). Shrinkage at the regional level and the establishment of highly competitive industries around Leoben appears to be improving the employment situation.

The structure of employment is typical of former industrial and mining regions. The share of jobs in the primary sector (2006: 4%) is well below the national average (2006: 6%). The percentage of the people employed in the secondary sector was above the national average from 1981 to 2006, but has been declining strongly (from 49.9% in 1981 to 31.8% in 2006). As far as the service sector is concerned, there is a general trend towards tertiarisation, although the share of jobs in this sector is below the national average.

Regional Development Strategies

After a succession of regional development strategies (economic, social, and nature conservation approaches), sustainable planning paradigms have come to dominate. Most of the Steirische Eisenstraße falls within the Obersteiermark Ost (Upper Styria East) planning region. Strategies at this planning level being too general for our special focus on mining, they are not dealt with. We concentrate on development strategy for the LEADER region Steirische Eisenstraße (time horizon 2007-2013) and the local strategies of municipalities most strongly affected by mining.

The strategic positioning of the Steirische Eisenstraße (cf. in the following: Land Steiermark, 2007) rests on three pillars grounded in cultural and natural resources:

—Die Eisen+ – Region (the iron region)

- Region around the Erzberg
- Cultural and historical mining heritage

—High-Tech

- Future resources and materials
- “Learning from nature”

—High Feeling

- Tourism highlights
- Adventure and extreme sports tourism

“The iron region” refers to the historical value of the mining heritage around the Erzberg, “high-tech” to more than a century of innovation and materials processing (in close connection with the Montanuniversität Leoben) and “high feeling” points to the vast, nearly untouched nature in the northern part of the region with its “raw” tourism potential. These pillars match the natural and cultural potentials of the region. Since valorisation of the mining heritage (“Eisen+ Region”) is well on its way, regional development strategy focuses on the two other pillars (“High-Tech”, “High-Feeling”).

On the basis of “High-Tech” and “High Feeling” spheres of activity were developed in order to achieve a region of high-tech material research and production (research and development, congresses and symposia, production sites, service-facilities) plus a region of tourism attractiveness (events as attractors, adventure and extreme sports facilities). These core activities are complemented by environmental variables such as housing, education, catering, culture etc. In the opinion of the author, the complementary variables such as the tourism framework (catering, high quality accommodation, unique regional products etc.) are the most important precondition for tourism development. They would help give the region identity and a more favourable image.

Strategic foci for development were set on the basis of the region’s spatial heterogeneity (see above) with spatially differentiated core strategies. Tourism development is mainly

planned for the mountainous parts in the south (recreation tourism) and north (adventure tourism), as well as in and around Leoben (cultural tourism). Industrial (high-tech material) development is planned for Eisenerz in the north and in the traditional industrial zone around Leoben in the south.

The next step was to identify guiding principles for future development and determine core and supporting issues. The development of high-tech industry (jobs, taxes etc.), the strengthening of the mining heritage, and attracting events were considered major priorities. Interestingly, tourism is not seen as a key factor for future development. Given the competition from high quality destinations throughout Austria, this is a cautious but realistic estimation of the situation.

Nearly all local development strategies in the investigation area pursue the same goals, such as preserving the mining heritage and cultural landscape or valorising the natural landscape for tourism (Ortner 2009). The main strategic focus for the mining region around the Erzberg is "smart" shrinkage of unused and hampering infrastructure (such as old miners' housing estates), the establishment of a tourism infrastructure (accommodation and catering), the promotion of high-tech materials industries and teleworking centres. The main emphasis in tourism is on adventure and extreme sports. The aim is to valorise rather than change the traditional "hard", "rough" and "loud" image.

An integrated tourism strategy accompanied by first measures was developed in the ReSource Project. Representatives of the four tourism associations came together for the first time for a strategy workshop. They developed a common conception for the regional tourism system and joint marketing measures. This first meeting was the starting point for future co-operation (2 workshops outside the ReSource project have already took place) and an integrated development path.

Recent Developments and State of the Region

As we have seen, regional development strategy is based on natural, cultural and economic potentials. Thirteen main projects were developed (Land Steiermark 2007), differing in the degree of implementation and success. We now turn to the region's major strengths and weaknesses and related projects and developments.

Natural preconditions offer enormous potential for tourism and for water and energy supply. A spectacular mountain range with nearly untouched woods and water bodies (lakes, small rivers, torrents, karst sources) could provide the basis for future tourism development (adventure and extreme sports tourism, ecotourism, hunting etc.). Besides, the region's water resources are predestined for water supply (the region is already one of the major water suppliers for Vienna) and energy production. Forestry is or rather could be an important economic pillar (energy and materials production). One drawback is the hostile climate in the

northern part of the area with long and cold winters and high precipitation. The unique and outstanding silhouette of the Erzberg is an important natural potential directly related to mining (see Figure 1). It is the identity-forming symbol for the region and could serve as a trademark for an extreme and adventure sports tourism region.

The cultural and historical identity of the region lies mainly in the mining and industrial heritage. A number of monuments, traditions and events draw on this heritage. On the other hand, the reputation of the region as the "industrial heart of Austria" has created a generally disadvantageous image inconsistent with the potential development of tourism in the region. Besides the mining and industrial heritage, the region is a major source of authentic rural culture (traditional costumes, folklore, events etc.), and a well-developed museum landscape with Leoben as a supra-regional exhibition centre.

Infrastructure and accessibility divide the region into two. The southern part has a fully developed transportation network and therefore good access to the supra-regional centres Vienna and Graz. Accessibility in the northern, mountainous part (around the mining centre Eisenerz) is poor and the transport infrastructure partly underdeveloped. Nearly the entire region is sufficiently endowed with general public infrastructure (education facilities, hospitals, administrative services etc. One clear locational advantage of the region is the Montanuniversität (Mining University) Leoben, an international centre of mining and materials research. A major weakness is the underdeveloped tourism infrastructure, which inhibits development of tourism (on the basis of the vast natural potentials) and contributes to the overall adverse image (in comparison to other Austrian tourism regions). Numerous accommodation projects (e.g. holiday apartment village, first class hotel on Lake Leopoldstein) and other tourism measures have failed. Important reasons for this "paralysis" are the lack of a touristic and service mentality among the population and caution on the part of potential investors.

There are also regional disparities in the economic field. The southern part of the region around Leoben has already experienced transformation from an exclusively industrial area to greater diversity in economic structures (nearly 40% loss of population). The Leoben area is now a viable regional centre with good economic prospects. The northern part is more diverse. Rural municipalities contrast with the mining area around Eisenerz. Unemployment in the Steirische Eisenstraße region is low compared to other declining mining/industrial regions (2001 5,8%) and social security is high. Together with extreme aging, this noticeably hampers regional development because there is little motivation for change. Another obstacle is ownership structure in the northern part of the region. The mining company (plus subsidiaries) and big landowners make alternative uses (esp. tourism) difficult.

Owing to the region's mining and industrial history, a close social and administrative network has formed with strong players (e. g. private, enterprises, associations, political actors, Montanuniversität Leoben). This is a major asset for cooperation and in realizing projects (cf. Erzberg Rodeo see below). The region also practices integrated cultural management, which is mainly in the hands of the Verein Steirische Eisenstraße (organization of events, fund-

raising, integrated museum management). On the other hand, this close network tends to be exclusive (especially as far as mining associations are concerned), which makes it difficult for external actors/influences and young actors to play a vital part. The steady loss of younger, well-educated population (esp. in northern part) and the consequent aging exacerbates this situation.

Contrary to all expectations, mining is still actively pursued in Eisenerz. Failed plans for a pelletizing plant would have offered prospects for a further 30 years of active mining and 150 additional jobs. Extraction equals that of peak times. The only difference is the number of people needed for extraction. Mining will nevertheless remain an important pillar in the region's economic future. This could prove somewhat problematical. Prolonged dependence on mining is likely to slow the diversification of regional development.

In the past numerous projects have been planned and partly realized under these regional conditions. The outcome has varied, but despite promising attempts no project has brought sustainable economic success measured in terms of restoring employment levels to those at the peak of mining and industrialization. A number of reference projects trace the predominant path for future development.

In tourism and related events they include the world-famous Erzbergrodeo (motocross event) and the erection of fixed rope climbing routes. The Erzbergrodeo attracts more than 45,000 visitors to the region every year, and with about 1,500 starters is one of the biggest motorcycle events in the world. This event fits in perfectly with the normally unfavourable "hard," "rough," and somewhat "dirty" image of the region and could prove a pillar for an extreme and adventure sports region. In the same context is the establishment of fixed rope climbing routes on the limestone rock surfaces around the city of Eisenerz. Together with other sport facilities (numerous hiking trails, cross-country skiing tracks, ski-jumping arenas, skiing resort on the Präbichl) and the natural surroundings, the region offers near perfect preconditions for extreme, adventure and endurance sports. On the down side are the lacking service mentality of the local population, the overall unwillingness to invest in the tourism infrastructure (esp. catering and accommodation) and the opposing interests of big landowners (mining company, private investors).

In the cultural field, the activities of the Association Steirische Eisenstraße and the cultural value of the city of Leoben should be mentioned. The former is in charge of integrated cultural management in the region, organizing events (traditional or modern), fundraising, and coordinating museums in an alliance. The city of Leoben is not only economically important but also the natural cultural centre of the region. Over the past two decades, a supraregional museum (Kunsthalle Leoben) has been set up there with exhibitions changing every year. The city is also an attractive venue for congresses, due to the Montanuniversität (Mining University) and a first class hotel in the city centre. Despite the national cultural and historical importance of the local mining heritage, these potentials do not contribute significantly to the attractiveness of the region. At least the show mine at the Erzberg (Abenteuer Erzberg) attracts a larger number of visitors (mostly school classes).

As we have seen, there are severe economic disparities in the region. In the Leoben area (south), the main industrial enterprises (such as the VOEST Alpine Bahnsysteme Gmbh & Co KG) and the Mining University provide a more or less dynamic economic basis. In the peripheral hinterland of the north (Eisenerz and surroundings) a number of economic development projects have failed. The latest case is the iron-ore processing plant (pelletising plant) planned at the Erzberg, which environmental legislation prevented. This facility would have brought 150 additional jobs and would have prolonged the end of mining by approximately 30 years. (Birnbauer & Pilch 2010). A positive and also very recent example is the establishment of an aluminium recycling plant, bringing about 30 new jobs to the region. This new facility cooperates closely with the Mining University in Leoben in finding new ways to recycle aluminium.

Conclusions

The development of the Steirische Eisenstraße region has always been closely associated with the fate of mining on the Erzberg and heavy industry in Leoben-Donawitz. Globalization of the raw materials markets and the crisis in public sector industry in the 1980s triggered a vicious circle that has persisted to this day. Job losses in the mining and industrial sector, out-migration, an ageing population, and a paralyzed society taking no active interest in future development are only some of the manifestations of general decline.

Nevertheless, the region has abundant potentials still to be exploited to the full. The vast natural landscape is one of the most important. Then there are spectacular mountain ranges, unspoilt water bodies, woods and, in the terraced Erzberg, an artificial monument and arena of national importance. This natural wealth can provide the basis for developing tourism. The unfavourable overall image of the area as a mining and industrial region and strong competition on the Austrian tourism market makes the establishment of conventional alpine recreational tourism (winter and summer) an unrealistic proposition. Instead of competing on such a mass market the region is seeking to position itself as a "hard&rough" centre for extreme and adventure sports. First reference projects – the Erzbergrodeo (motorcycle event) and the installation of fixed rope climbing routes – already demonstrate the sort of opportunities this development path offers. What is lacking is a service mentality among the local population and a well-developed tourism infrastructure (esp. catering and accommodation). Unless these problems can be overcome, tourism will remain an unviable option. In addition, natural potentials, especially water bodies and forests, can prove a further economic pillar for the region (e.g. forestry, hunting tourism, water supply).

Of national importance and closely associated with tourism is the region's cultural heritage (esp. the mining heritage). Now nearly fully developed the region has professional integrated cultural management the heritage has proved insufficient to attract enough visitors and provide an adequate economic basis. Existing cultural potentials should be seen

more as an important supplement to the planned mix of an adventure and extreme sports region in the north and a congress city (Leoben) in the south. Other future options are cultural events ranging from the traditional to the avant-garde. This new cultural positioning could be an identity-forming element in correcting the unfavourable image of the region.

Over and above cultural, natural, and touristic potentials, the Steirische Eisenstraße has a viable industrial core in the south. After restructuring and modernisation in the 1990s, this industrial core still constitutes the key economic pillar in the region. Together with the Montanuniversität Leoben the region is now a centre of high-tech production and research.

Most important for the development of potentials described is a functioning network of actors providing dynamic conditions for future development. The mining history the region has produced a strong and more or less hierarchical network of key actors. Where agreement exists on measures and projects, this network can help implement strategies and plans. In other respects this often inflexible network tends to exclude external and young actors as well as new influences. The network is also highly competent in obtaining funding from various political levels. The reason is the strong political embedding of the region as a former "national symbol" for mining and related heavy industry. The high level of social security among the population combines with this financial support to produce a "subsidy-mentality" inhibiting innovative developments. Without subsidies hardly any of the leading projects would have been implemented.

As the past has shown, the region needs profound and forward-looking restructuring to valorise its potentials. This process started in the 1980s and will continue until excavation ceases on the Erzberg.

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Wałbrzych (Poland) – Diversification of the Economy Is Possible

Introduction

Wałbrzych is situated in south-western Poland in the Lower Silesia Voivodship. Close to the Czech border, the location is peripheral in Poland as a whole and in the Lower Silesia region. The town is intersected by the national route 35 from Wrocław to the border crossing in Golińsk (PL)/Starostín (CZ). There is no air transport connection, but the municipality has good rail links with the main Polish cities and with Prague (CZ).

Administratively, Wałbrzych has the status of an urban municipality. It is the second largest city in Lower Silesia by population. Situated in a valley in the central Sudety Mountains, it is surrounded by the forested Wałbrzyskie Mountains. The oldest historical records on Wałbrzych date from the 12th century.

The total area of Wałbrzych municipality is 85 sq. km (industrial area 7%, roads 7%, residential areas 13%, agricultural land and woodland 66%, tourist areas 2%). It has a population of over 120 thousand (Central Statistical Office 2010). The development of the city, including population growth, has been directly linked to development of the mining industry. The relatively highest dynamics in this branch were observed in the second half of the 19th century and the first half of the 20th century during intensive, mining-based industrialisation (Czapliński et al. 2002). The population peaked in 1989, right before transformation commenced in Poland. The population has since been declining and aging (Fig.1 and 2). Each year since 1995 has recorded a negative migration balance for both outmigration and emigration and for the birth rate. The urban character of the municipality has to do with the high population density: approx. 14 thousand people per square km in 2010. The level of education in Wałbrzych is similar to the average for Poland (higher education 8%, secondary education 35%, vocational education 23%, primary education and without education 34%) (Central Statistical Office, 2010).

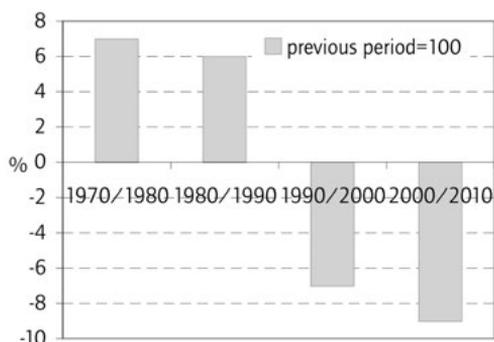


Fig. 1: Development of population in Wałbrzych municipality from 1970 to 2010
(Source: Polish Central Statistical Office, 2011)

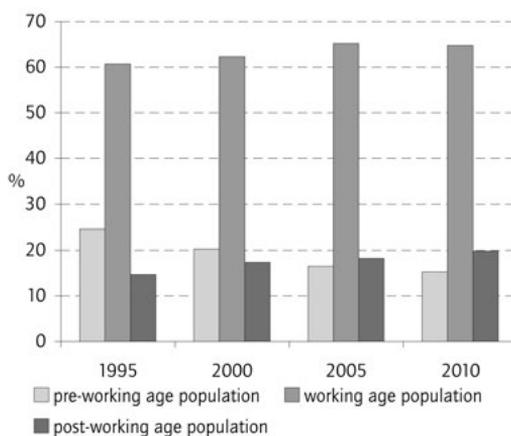


Fig. 2: Development of population structure by economic age groups in Wałbrzych municipality from 1995 to 2010
(Source: Polish Central Statistical Office, 2011)

The level of social activity in Wałbrzych measured by the number of associations per 10 thousand inhabitants, about 20 in 2009 (Central Statistical Office 2010), is below the average for Lower Silesian communities (low level of social participation is relatively common in post-mining regions, see Černič Mali & Marot, in part IV of this volume). Owing to unsolved social problems, it is not surprising that the majority of organisations operate within the welfare system.

Due to the urban character of the municipality, it is relatively well endowed with social infrastructure. The higher education sector is represented by five colleges.

One specificity of the industrial town of Wałbrzych is that, despite its industrial character, it is a "green" city. Forest and meadow occupy more than half the urban area. Moreover, Książański Natural Landscape Park is situated within the bounds of the municipality.

The Mining Past of Wałbrzych

In the nineties of the last century there were five hard coal mines in the Lower Silesian Coal Basin in two regions, Wałbrzych and Nowa Ruda. In comparison with the mines in the Upper Silesian Coal Basin, extraction in Lower Silesian mines was generally much lower, amounting to several hundred thousand tons per year. In the nineties it did not exceed five hundred thousand tons. Although good quality coking and anthracite coals are to be found in the Lower Silesian Coal Basin, the low level of extraction and exorbitant production costs caused by local geological and mining conditions provoked the decision in 1990 to close down the mines. The extraction of coal in the Wałbrzych region came to an end in 1993-2000 to be followed by measures preparing closure and converting the mine infrastructure to new uses. These measures included filling in all drawing shafts except at the "Pokój Julia" pit. The rock mass was gradually flooded; ground water levels stabilised in 2002. The remaining coal resources in the closed down Lower Silesian mines have been classified as off-balance sheet, and there is little prospect of mining activities resuming. In January 1991, i.e. when the Wałbrzych hard coal mines were being wound up, the total number of people in employment (in Wałbrzych and Nowa Ruda) was 14,006. Restructuring of the Wałbrzych mines had cost 13 thousand miners their jobs by 1996 (of whom 26% retired, 13% went into bridging retirement, 21% were made redundant, 19% went onto welfare, and 20% found other employment) (Pawlak 2008; *Restructuring Programme 1994&1995*; *Strategy of Sustainable Development of the City of Wałbrzych until 2013*, 2005; Wasilewski et al. 1996).

Restructuring Programmes

The National Restructuring Programmes for the Coal Mining Industry operating in Poland, was mostly concerned with Upper Silesia as the most important coal mining area in the country. The problems of the Wałbrzych Coal Basin were handled with undue haste (*Programme of restructuring the hard coal industry in Poland – implementation of stage I as part of the state financial possibilities*, 1993; *Reform of the hard coal mining industry in Poland in the years 1998-2002*, 1998). In fact, the decision to close the mines was made after regime change in Poland (1990) without any attempt being made to restructure industry in the region. Restructuring programmes at the national level came into operation in 1993. They aimed to change the organisational structures of the hard coal mining industry, to achieve the restructuring of

technology and employment, to introduce social protection, wind up and finalise the closure of permanently unprofitable mines, and thus to attain profitability. For the mining industry in the Wałbrzych region, these programmes meant that mines were gradually closed down, miners were dismissed, social protection was introduced, and post-mining property was disposed of (Blaschke et al. 2004; *Hard coal mining*, 1996; *Restructuring Programme for Wałbrzych Province* 1994&1995; *Programme of restructuring*, 1993; Lipowski 1997; Turek, n.d.).

The remaining assets of closed mines were transferred to the National Hard Coal Restructuring Agency (subsequently the Mine Restructuring Company). Its principal task was to handle post-mining property, which was privatised or let. There were no visions or concepts for global planned and coherent management of this property, nor any concepts for conversion (Krzemińska et al. 2009). As a result, privatisation was selective, chaotic and spontaneous. The structure of post-mining areas is thus now extremely fragmented and incoherent, both with respect to ownership, function, and location. This is a major problem for the development of these areas.

Regional restructuring programmes were prepared annually. The idea of restructuring the Wałbrzych region was raised in the year 1989. In 1992 the Wałbrzych province was recognised as a region particularly threatened by structural unemployment. In 1993 the first provincial restructuring programme, the "Wałbrzych Province Development Plan," was presented. Priorities included developing "big opportunity" sectors (on the assumption that despite liquidation of the mining industry, the industrial sector would remain a significant element of the regional economy), and developing small and medium enterprises (SMEs). At the same time, foreign investment was considered necessary. The programmes referred to the principal targets of the "Strategy for Development of the Wałbrzych Province", i.e. increasing attractiveness for potential domestic and foreign investors, guaranteeing a pace of development apt to improve the situation on the job market. The main operational targets therefore included improving the natural environment and the technical infrastructure (Kowcz 1993; *Strategy of Development of the Wałbrzych Province*, 1993; *Wałbrzych Province Development Plan* 1993; Wasilewski et al. 1996).

In subsequent years, annual restructuring programmes for the Wałbrzych Province were developed. They specified projects, how they were to be carried out, and how they were to be financed. From 1994 to 1996 regional restructuring programmes were supported on a large scale by the national government (approx. ECU1 10 million). Funding by the European Union in the framework of the PHARE Programme helped considerably in financing economic transformation of the Wałbrzych Region, especially in business support (*Restructuring Programme for Wałbrzych Province* 1994&1995).

The majority of targets set by the various programmes have been attained only to a relatively small extent, owing mainly to a lack of consistency in implementation, an inadequate system for evaluating programme implementation, and limited financing.

State of Rehabilitation

An obvious consequence of long-standing mining and related industries is pollution of the natural environment. Air, water and soil contamination had a particularly negative impact on both health and infrastructure, also in housing areas (Potocki and Szczeńniak, 2009). It should be stressed that that air pollution decreased significantly in the 1990s (Central Statistical Office, 2010). Other consequences of mining were the water deficit due to coal mining, and the need for constant monitoring of the gas risk. A direct consequence of coal extraction is significant mining damage. This damage is most conspicuous in central and southern Wałbrzych (Krzemińska et al. 2009). Despite visible damage to housing, the municipality has constant difficulty obtaining compensation from the Mine Restructuring Company (Interview with Mayor, 2010). Extraction of coal in the last few years of operation after the closure decision had been made was wasteful. Shallow coal beds were worked, leading to significant damage mainly from subsidence, frequently in the centre of the city. The problems inherited from Wałbrzych's mining past are clearly visible in the investment area in the old part of the city, and nothing has yet been done to remedy the situation (Wałbrzych Municipal Office 2010).

Former and Current Economic Structures

The collapse of the mining industry and the low potential offered by other sectors caused high unemployment in Wałbrzych and whole mining district. Moreover, the structure of unemployment has exacerbated the situation, since a high proportion of the jobless are chronically unemployed (Central Statistical Office, 2010). This intensifies the social crisis through long-term exclusion of a significant segment of the job market.

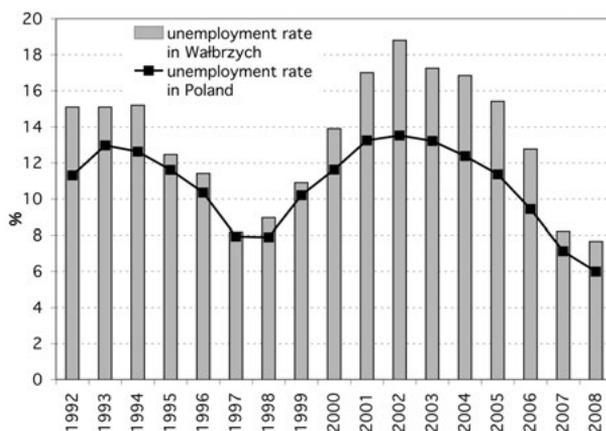


Fig. 3: Unemployment rate in Wałbrzych municipality 1992-2008
(Source: Polish Central Statistical Office, 2010)

The unemployment situation was difficult in the whole country and had to do with the political and economic transformation process. The drop in unemployment in the second half of the 1990s was mostly due to the improving economic situation in Poland (Fig. 3). Moreover, the positive influence of establishing and developing the Wałbrzych Special Economic Zone ought to be stressed.

Before 1989, the economy of the town and whole region depended heavily on mining. About 20% of the labour force in Wałbrzych was directly employed in mining. In the 1990s the structure of the city’s economy changed. There was a significant decline in the proportion of people employed in the industrial sector and an increase in service sector jobs (Fig. 4). While this was a consequence of mine closure, it was also an expression of the “natural” shift in the economy from industry to services. There has nonetheless been a slight increase recently in the number of people employed in industry, which can be attributed to development of the Wałbrzych Special Economic Zone. Despite the collapse of the mining industry, Wałbrzych remains industrial in character. The most important “traditional” industries at present are ceramics, glass, textiles, and building materials; and the newcomers are the automotive industry, electrical machinery, and chemicals.

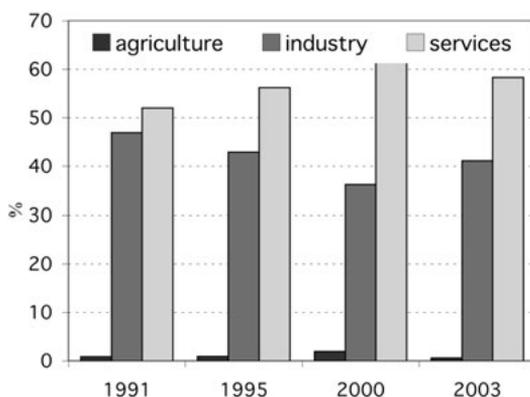


Fig. 4: Employment by sectors in Wałbrzych municipality 1991-2003
(Source: Polish Central Statistical Office, 2010)

In 1997 the Wałbrzych Special Economic Zone “Invest Park Ltd” was established. It is among the best developing zones in the country. Since the start of business activity it has been co-operating in the form of a partnership with the Wałbrzych municipality on constructing the technical infrastructure in the zone and on other activities to attract investors. Companies operating in the zone belong, for example, to the automotive and electrical machinery industries, and employ approximately eight thousand people (Wałbrzych Special Economic Zone “Invest-Park”, 2010).

Among recent projects to activate the city's economy, a new initiative should be mentioned. By resolution of the city council, a new investment area was designated in the territory of the municipality, a "Zone of Economic Activity" for small and medium-sized companies (area of approx. 120 ha). Addressing SMEs, this initiative complements the existing Special Economic Zone "InvestPark", mainly designed for large industrial enterprises. Not only the Wałbrzych municipality has been involved in running the Zone of Economic Activity but also various other actors such as the Lower Silesian Regional Development Agency in Wałbrzych, employers' associations, and neighbouring municipalities (Wałbrzych Municipal Office, 2010).

The city accommodates institutions whose main purpose is to promote business and industry, e.g.: the Lower Silesian Regional Development Agency in Wałbrzych, the Lower Silesian Technology Park, and the Wałbrzych Region Fund Foundation. The city has taken numerous steps to promote business, such as tax deductions, the special economic zone, assistance for specialised institutions, investment offers, advisory and consultancy services, Credit Guarantee Fund (Lower Silesian Regional Development Agency, 2010).

Given the negative impact of transformation on the job market, the principal task undertaken by municipality authorities in the 1990s was to guarantee jobs for residents. The next step was to position Wałbrzych in the national economic arena. Valorising the tourist potential of the city and its surroundings was another goal (Interview with Mayor of Wałbrzych, 2010). In recent years there have been positive changes in local development. They can be largely attributed to the municipal focus on attracting investors (Interview with President of Lower Silesian Regional Development Agency, 2010). Given the industrial heritage of the city and immense need for new jobs, "reindustrialization" was identified as the solution to local problems (as in other post-mining regions, see Harfst & Wirth in part II). The results are directly apparent in the economic field, but in the long term will also make themselves felt indirectly in the social sphere (as decreasing unemployment reduces social problems). Positive developments in Wałbrzych can already be noted in the progress of the industrial zone and investment.

Regional Development Strategies and Utilization of Post-Mining Potentials

Among recent regional strategies, the most important has been the "Strategy of Sustainable Development of the City of Wałbrzych to 2013" (adopted in 2005 for the period to 2013). The aim is to build a strong economy based on a wide range of industries, the business activities of SMEs, and a very strong tourist sector. One of the principal objectives is to create a friendly atmosphere and favourable conditions for business, taking particular account of modern industries and services. An important element in attaining these goals is attracting investment in industry and services which in Wałbrzych are mostly located in the Wałbrzych Speci-

al Economic Zone. The lack of a coherent concept for developing post-mining sites is clearly a major problem for the municipality (*Strategy of Sustainable Development of the City of Wałbrzych until 2013*, 2005).

Revitalisation programmes have been realized by the Wałbrzych municipality (Revitalisation Programmes 2004-2006 and 2008-2015), but post-mining sites are not included in the area under intervention (*Revitalisation Programme*, 2004&2008).

Wałbrzych is also currently implementing the "Wałbrzych Promotion Strategy for 2008-2013". The principal aim is to revamp Wałbrzych's image to eliminate the contradiction between the actual resources of the city and its present image. Mining issues are taken into consideration to a significant extent, e.g. the symbol of the city "mines of mystery" or making use of mine dumps for off-roading. The post-mining legacy is part of the city's landscape. At the same time it constitutes an element which can contribute to altering Wałbrzych's image. It is a link between the "mining city" and the "city of active recreation" (*Wałbrzych Promotion Strategy*, 2008).

Earlier strategies (i.e. *European Strategy of the Wałbrzych Region*, 1997; *Strategy of Development of the Wałbrzych Province*, 1993; *Wałbrzych Local Development Plan*, 2004) took only architectural aspects of the mining heritage into account: the renovation of a post-mining building and conversion into a social welfare centre.

In the Long-term Investment Programme for the City of Wałbrzych for the period 2007-2013 (2007) the only element associated with mining is the allocation of funding to establish the Museum of Industry and Technology; no other investments have targeted post-mining sites.

The most important project dealing with post-mining areas is the "Old Colliery" Polycultural Park Project. The idea of the Polycultural Park on the site of former "Julia" mine was born in 2007. In 2009 the project was adopted. The aim is the revitalisation and adaptation for cultural purposes of the former hard coal mine "Julia", one of the most valuable monuments of technical culture in Europe. A total of about € 12.5 million was allocated for the purpose, including € 8.5 million from the EU and € 4.1 million From the Wałbrzych municipality. The first stage of the "Old Colliery" project involves expansion of the existing Museum of Industry and Technology. What fits in well are the various exhibitions (multimedia and interactive) on the mining history of Wałbrzych, as well as occasional events. They would include multimedia presentations about miners, mining and the geology of the Sudety Mountains. The development of underground excavation is also treated along with the development of the technological facilities linking the basements of individual buildings. Tourists can view, among other things, a tunnel, a railway subgrade with a complete arrangement of exhibits installed in the stone delivery tunnel. Also planned is a European Centre of Unique Ceramics. The converted facilities are intended to house non-governmental organisations, smaller cultural institutions, and a gallery of modern art, as well. The "Old Colliery" project also involves the next two stages of investment. These will include moving the Sudecka Philharmonic to the site and

converting part of the area for commercial purposes. This is a complex, interdisciplinary project for post-mining area development designed for various types of service activity (commercial and non-commercial) and to create a "vibrant" public space in a place that had hitherto been almost "dead" (Wałbrzych Municipal Office, 2010).

The next important task is the "Princess Daisy Route" project. The route is intended to link up existing and the planned tourist attractions in the city, from Książ Castle, to the Aqua Zdrój (sports and recreation centre), and the Polycultural Park in the old town. A hiking, cycling and car route links up important places in the city into an integrated tourist trail. It is an attempt to revive the city centre, first and foremost the old town, by attracting both tourists and local residents. It is an example of an integrated and coherent approach to developing the city (Wałbrzych Municipal Office, 2010).

The motocross track is the example of a project which makes direct use of old mine dumps. This project is mainly aimed at the younger generation (residents and tourists) (Wałbrzych Municipal Office, 2010).

Activation of the city centre is also expected from two large shopping centres currently under construction. They are being erected on brownfield sites, largely abandoned after mine closure. While this allows post-mining sites to be developed, it is also an attempt to restore these areas to the city and its residents. Throughout the years they fulfilled industrial functions, and after the mines had closed down they became redundant. Their location in the centre or close to the centre makes them potential sites for urban development. The shift in use from industry to commerce and services is designed to revive the city centre and attract residents and tourists (Wałbrzych Municipal Office, 2010).

Discussion of the State of the Region

Wałbrzych has both potentials and serious problems. Thanks to the mining past, these potentials include strong and enduring mining and general industrial traditions. They spring from the industrial experience of the labour force and the activities of associations that cultivate local traditions. Mine closure has made accessible areas available for development. But accessibility is limited because of contamination of the terrain, the remaining infrastructure (e.g. sedimentation traps and slag heaps, difficult construction conditions due to mining damage, the fragmentation and complicated conditions of privately owned plots). Another possible potential is the extraction of raw materials from mine dumps. Numerous legacies of the mining industry, especially the post-mining infrastructure, can be used for different purposes; at present only the Museum of Industry and Technology is in operation (mining infrastructure from the 18th century). The activity of former local authorities and the realization of a significant project for the utilization of post-mining areas ("Old Colliery" project) are definitely favourable developments.

Wałbrzych also has potentials that have nothing to do with mining. They are mainly in the ecological and cultural fields (Medwecka et al. 2010). With the mountainous location and concomitant year-round recreational facilities for sports and various forms of tourism (e.g. cycling and mountain-biking, skiing), numerous tourist trails, viewpoints, memorials and natural monuments make Wałbrzych an attractive tourist destination. This is an important advantage as it allows the mining heritage of the region to be integrated into developing tourism. There are also health resorts and rapidly developing top grade tourism. Another important strength of this area are the numerous architectural monuments, including Książ Castle (formerly Fürstenberg/Fürstenstein) the largest castle in Lower Silesia, built in the 13th century (Czerwiński, 2009). Moreover, neighbouring municipalities are willing to co-operate in developing and promoting tourism. In this context, the proximity of the Czech and German borders and big cities is a major advantage.

Although negative features predominate in the economic and social spheres, several strengths can also be noted. The most important is the Wałbrzych Special Economic Zone "InvestPark" and other pro-investment initiatives by local authorities. Human capital and entrepreneurial activity are also increasing, and there is growing interest in a healthy lifestyle and active recreation. Considerable manpower (with experience in industry) and baby boomers entering the job market are an asset. In the social sphere, the activity of numerous cultural institutions in Wałbrzych (especially the Szaniawski Wałbrzych Theatre) is a strength of the region.

The most serious weaknesses in Wałbrzych lie in the economic, social and environmental fields, in the utilization of material and immaterial post-mining potentials, and in local governance. The most serious problems include a low level of entrepreneurship and human and social capital. Crucial weaknesses in the social sphere are depopulation, distorted social structures, and tackling social problems by transferring funds, and in the absence of intensive social mobilisation. Serious drawbacks in the context of local development are environmental pollution (low air pollution, high soil and water pollution, and difficult-to-rehabilitate, degraded post-mining sites (mine dumps, sedimentation traps). Failure to take advantage of the potential of Wałbrzych and its surroundings as a tourist base and insufficient tourist infrastructure are significant weaknesses. The fact that post-mining sites are scattered throughout the municipality and the region and are under varying ownership hampers rehabilitation and utilization. The lack of special aid projects for the Wałbrzych region like those to be found in Upper Silesia is another weakness. Insufficient funding for the necessary infrastructural investment and other activities is a serious obstacle to development in Wałbrzych. All these problems have given Wałbrzych an unfavourable image, and residents have little sense of identification with the city.

Local actors and their relationships can generally be judged optimistically, although some weak aspects need to be eliminated. Former local authorities (term ended in 2010) of the municipality have played a positive role, for example, in introducing integrated plans for the utilization and development of post-mining sites. Moreover, there is active co-operation with the Lower Silesian Regional Development Agency in Wałbrzych and the Special Economic Zone.

They offer favourable economic prospects. In the social sphere, however, the relatively small number of NGOs and inadequate co-operation between the authorities and non-governmental sector are decided weaknesses. In this regard, the policy of local community activation could bring positive results.

Conclusion

Insufficient advantage is still taken of post-mining potentials in the Wałbrzych municipality. Faced by numerous social and economic problems, the authorities have focused on dealing with the most urgent difficulties. In recent years there has been a shift towards the integrated development of post-mining sites in the municipality. However, although management of the city in the early and mid-1990s was not very successful, the positive elements need to be stressed. Since 1997 the city has pursued a consistent development strategy and practiced solid project management. The core project has been the establishment and further development of the industrial park. Strong co-operation between the city authorities and the regional development agency and major investment has initiated an integrative approach to "reindustrialization." The post-mining heritage is an important issue for Wałbrzych. Years of negligence in the management of post-mining areas are almost impossible to compensate (e.g. complicated ownership structure, degradation of the technical infrastructure). However, cultural potentials deriving from the mining past of the city are being exploited, and significant progress in this respect is clearly being made, notably with the "Old Colliery" project. Moreover, the identification and selection of a new path for developing Wałbrzych and the elaboration and implementation of a development strategy would allow advantage to be taken of unquestionable post-mining potentials for the benefit of local development in the municipality.

1. ECU – The European Currency Unit was a basket of the currencies of the European Community member states, used as the unit of account of the European Community in years 1979-1999.

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Zasavje (Slovenia) – A Region Reinventing Itself

Introduction

Zasavje region is one of 12 statistical regions in Slovenia, which has no regions or provinces in the sense of administrative units. Statistical regions (NUTS3) thus also represent the implementation framework for regional policy. Zasavje region is the smallest in area (264 km²; SORS 2011), population (44,222; SORS 2011), and number of municipalities (NUTS 5) – Zagorje ob Savi, Trbovlje and Hrastnik. For the purposes of cohesion policy (2007-2013), Zasavje region belongs to the eastern, less developed part of Slovenia (SORS 2011). Economically, it is a region of old industry with the third highest unemployment (13%; SORS 2011) and second highest proportion of employment in the industrial sector (51%; SORS 2011). Compared with other Slovenian mining areas – the municipalities of Velenje and Idrija – industry there is least able to cope with structural change. For this reason it was chosen as a case study for the ReSource project.

Mining has been a keyword in the region ever since the early 19th century. In the past it has been denigrated as a region “lagging behind in development,” a “degraded” region with a “black environment,” etc. Recent research into the attitudes of young people, reported by Marot and Černič Mali in part IV of this volume, confirmed this image of the region, although the views of the population have recently been becoming more favourable. The region lies in central Slovenia. The distance from Trbovlje, the regional centre, to Ljubljana is 60 km, to Graz 160 km, to Vienna 345 km, to Trieste 160 km, and to Budapest 400 km. However, the region is rather peripheral owing to an extremely poor transport infrastructure, e.g. there is only one highway junction in the region. This chapter looks at the current state of Zasavje as a mining region, the policy making process, and new initiatives in the region after mine closure began.

The Zasavje Region in Brief

Geologically, Zasavje is situated in the Posavje range, the largest physical geographical feature in central Slovenia, stretching from the Ljubljana basin in the west to the Croatian border in the east, and composed of slate, clay and sandstone. Brown coal, formed 24 to 35 million years ago, is to be found in the synclines under limestone and marl. Due to the geological structure, the land is mostly hilly, the highest peak being Kum at 1217m. The slopes are steep with an incline of about 12° to 30°, which increases the risk of erosion and denudation (Enciklopedija Slovenije 1995). Two thirds of the region are covered by forest, the prevailing species being beech, white beech and oak (Gams & Vrišer 1998), severely damaged in the course of past industrial activities (Vidergar-Gorjup & Batič 1999).

As shown in Tab. 1, the region is slowly losing population; between 1981 and 2011 there was a 4% decrease. Hrastnik lost 9% of its population and Trbovlje 8%. Only Zagorje ob Savi gained 3% due to the proximity to Ljubljana and the highway. As elsewhere in Slovenia and Central Europe, the population is aging, 18% are 65 and above, while only 13% are 15 and younger (see Fig. 1). What is more, the aging index¹ stood at 139 in 2011 which means that older population aged 65 and over exceeds the young population aged 0-14 by 39%. This makes Zasavje the oldest region in Slovenia. Education is at a level similar to that in the country as a whole, e.g. 54% population age 15 and above, has finished secondary school (53% on the national level). However, 13.5% have completed higher education, which is below the national average (17.5%; data available for 2011; SORS 2011).

Tab. 1: Population development in Zasavje region 1981 – 2001

	Population total				Population change (%)			
	1981	1991	2001	2011	81-91	91-01	81-01	81-11
Hrastnik	11,024	11,059	10,444	9,984	0%	-6%	-5%	-9%
Trbovlje	18,786	19,337	18,498	17,194	3%	-4%	-2%	-8%
Zagorje	16,494	16,960	17,181	17,044	3%	1%	4%	3%
Total region	46,304	47,356	46,123	44,222	2%	-3%	-0.4%	-4%
Nat. figures	1,891,864	1,965,986	1,994,026	2,050,189	4%	1%	5%	8%

Source: SORS 2011

¹ The Aging index is the ratio between the old population (aged 65 years or more) and the young population (aged 0-14 years), multiplied by 100.

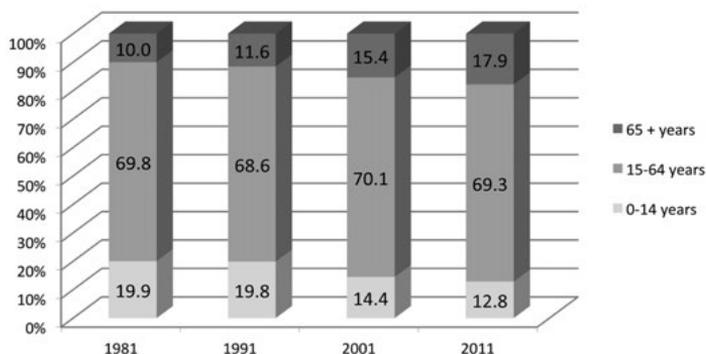


Fig. 1: Change of age structure of population in Zasavje region (SORS 2011)

Economically, Zasavje owed its initial development to local coal deposits, and continues to be strongly associated with mining. Today, the region is still well positioned in the secondary sector with 51% of the workforce employed in industry, 46% in services and 3% in agriculture (SORS 2011). Agriculture is almost negligible and confined to the larger municipality of Zagorje. At € 12,044 per capita, Zasavje has the second lowest regional GDP in Slovenia after the Pomurje region (2008). This is lower than for the Eastern cohesion region and less than half the figure for the Ljubljana urban region, the most developed region in Slovenia with € 26,181 per head. Zasavje contributes only 1.5% to national gross domestic product and also earns the second lowest regional GDP. 51% is earned by services, 47% by industry and only 2% by agriculture². The biggest contributors to regional gross value added for 2008 (in NACE terms) are mining and quarrying (31.3%), real estate, renting and business activity (19.6%), and wholesale, retail and repair (10.1%; SORS 2011). The number of large companies decreased from 8 to 5 between 2000 and 2009 (AJPEŠ 2009). Major employers in the region are energy production, the electro-technical, wood processing and furniture industries, construction material production, glass manufacturing, and the chemical industry (Gračnar 2009).

Industrial transformation in the region has brought serious job losses. The unemployment rate is now 13%, almost the national average (SORS 2009). A change in definition is partly responsible for a decrease in unemployment from 2005 onwards. Otherwise unemployment peaked in 2001 at 16% in the region and 19% in Trbovlje municipality. Today, approximately half of those out of work are chronically unemployed and have complete only secondary or primary education (SORS 2011). The labour force exceeds the number of available jobs by 29%; of the 16,892 persons registered as resident in the region only 12,034 had a job there in 2010. The increase in daily commuting and in the proportion of people who work outside the region is shown in Fig. 2. In 2008 4,070 of them had a job in Ljubljana (SORS 2011).

² This data represents the share of sectors in regional gross value added by activities at basic prices, accounted for current prices (SORS 2011).

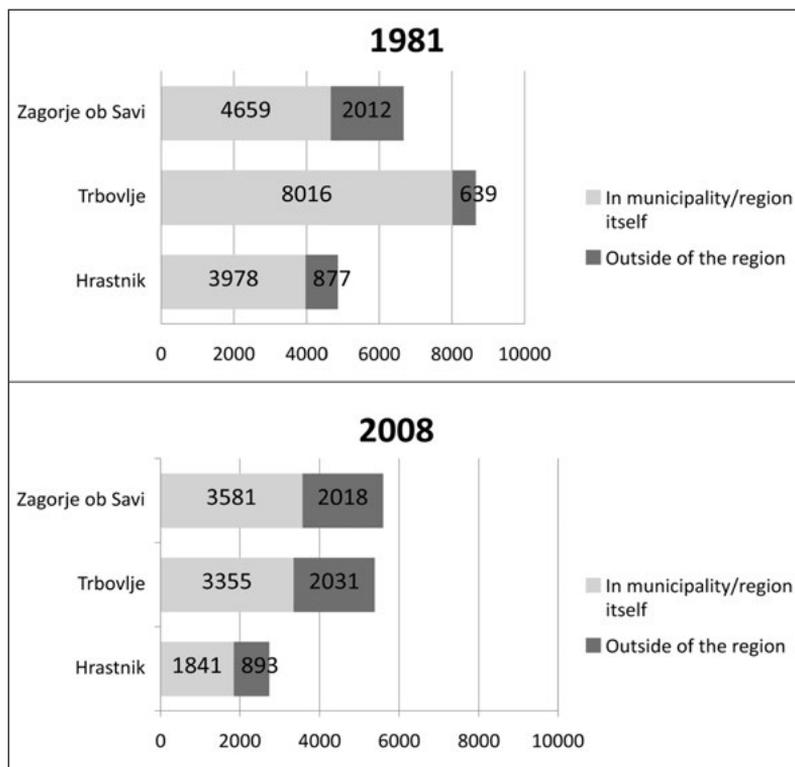


Fig. 2: Places of work for active population - residents of the Zasavje region; comparison between year 1981 and 2008 (SORS 2011)

Mining Past and Present

Brown coal mining goes back to 1755 when excavation started in the municipality Zagorje ob Savi and then, fifty years later, in Trbovlje (1804) and Hrastnik (1824). At that time fewer than 10,000 people lived in the region, mainly in dispersed villages, mostly employed in agriculture. Mining as an economic activity initially found little support; it received a boost only under the Austrian-Hungarian Empire when coal became the major source of energy fuelling development. One of the mainstays of development strategy was construction of the Austrian Southern Railway through Zasavje linking Trieste and Vienna, which brought rapid development to the region. To begin with, production was mostly open cast in the area of Retje, Lakonca and Bukova gora. Later, when surface deposits had been exhausted, excavation moved underground. In 1873 mine owners founded the Trbovlje mining company, mainly with Austro-French capital, which took over all major mines in the broader area to secure a monopoly of the coal market (Ivančič Lebar 2004).

Mining also boosted industries supplying mines and using the by-products of mining. The first such plants were set up in the early 19th century, for example a sulphuric acid plant (1802) and glass factory in Zagorje. They were later joined by a lime factory (1842), a glass factory in Hrastnik, a chemical (1860) and cement plant (1876). In 1906 energy production started in the Zasavje region with the establishment of the first power plant. Until steel came to be used for props, mining was also a major consumer of wood; there were sawmills in every municipality. In Zagorje one such mill branched out into the furniture industry (Ivančič Lebar 2001).

The growth of production gave a significant boost to population growth and social structural change, with farmers becoming miners. The region was unable to meet the demand for labour, so that immigration from the nearby Dolenjska region and southern parts of the Empire was needed. Urban growth brought new services and construction to house miners: 12 estates were built in Trbovlje, 5 in Zagorje and 3 in Hrastnik (so-called "colonies"; Marot 2005). As production increased, the labour force demanded a better quality of life and greater social security. Zasavje was accordingly one of the first places in the country to experience strikes, the first in 1883. In 1946, after the Second World War, the new political system brought nationalization of the mines. In 1968 the company Zasavje Mines of Trbovlje was established, employment peaking at 8,000 employees. At that time immigration from the southern Yugoslavian republics significantly increased, which is now reflected in the ethnic structure of the population – around 15% to 20% of the population is non-Slovene (Ivančič Lebar 2001).

After independence in 1995, the Slovenian parliament adopted the Act Providing Funds for the Closure of Coal Mines in Zagorje, Senovo and Kanjžarica (Act 1995) which established the legal framework for reorganizing the company Brown Coal Mines of Slovenia into several local companies, e.g. Trbovlje-Hrastnik Mine and Zagorje Mine for closure purposes. The founder and the sole proprietor of these companies is the government of the Republic of Slovenia. Under the act, the full closure of the Zagorje Mine was initially scheduled for 2000 but later postponed to 2005 (Broder 2005; Rudnik Trbovlje-Hrastnik 2009). In 2000 the Act Regulating Gradual Closure of the Trbovlje-Hrastnik Mine and Development Restructuring of the Region (Act 2000) scheduled cessation of production in the Trbovlje-Hrastnik mine for the end of 2007 and the final winding-up of the company for 2012. Additional negotiations with the government and the EU extended production to 2012 (Černe & Leskovar 2009). After another eight years of monitoring and closure measures, the mine is expected to close for good in 2020 (Broder 2005). In the course of closure, production has been cut to approximately 500,000 tonnes and will be further cut under an annual closure plan (Velikonja & Starman 2009).

Tab. 2: Employees in mining companies over time in Zasavje mines

	1988	1995	1998	2003	2009	2014
Zagorje Mine	905	444	90 (2000)	47 (2002)	4 (2008)	0
Trbovlje Mine	1655	1174	798	688 (2001)	487	178
Hrastnik Mine	1260	806	578	508 (2001)		
Total	3820	2424	1466	1243	491	178

Source: Ivančič Lebar 2004; Černe & Leskovar 2009

The run down of mining activity also reduced employment and brought economic change. A total of 3,329 (87%) jobs in mining were lost between 1988 and 2009, the cuts in individual companies are shown in Tab. 2 (Ivančič Lebar 2004; Černe & Leskovar 2009; SORS 2009). Even though the absolute figure appears low compared to mining jobs losses in other regions discussed in this volume, it had an enormous impact on the regional economy.

The State of the Region

Mine closure has left the region with both problems and potentials. Environmental damage is mostly limited to the excavation site. The mine now covers some 1400 hectares in Zagorje ob Savi and 1434 hectares in Trbovlje and Hrastnik, of which 70% are significantly degraded (Černe & Leskovar 2009). The effects are vegetation loss and damage, subsidence, landslides, quarries, water irruptions, tailings removal and disposal, and barren land. The consequences of other, mining-related activities include air pollution (SO₂ pollution has been diminished by a sulphur purification plant) and soil pollution. Heavy pollution has produced health problems such as respiratory diseases, hearth conditions, cancer and poisoning (Marot 2005; Klančičar 2006).

Housing is one of many socio-economic problems. Former miners' housing estates do not meet modern standards. Residents have to cope with legal property issues and the poor state of buildings. In general there is no national strategy for renewal, although some good practice examples are to be found, e.g. estate in northern Trbovlje town (RDP 2007). Former mine company buildings stand vacant owing to property disputes and there is no reinvestment strategy. High unemployment, a lack of business, and mine land ownership are the biggest issues troubling the region (Marot 2005; RDP 2007).

Despite the environmental and socio-economic damage caused by mining activity, the SWOT analysis of the Zasavje region (Harfst et al. 2010) also revealed strengths on which the region could draw for the transformation process. For example, under the heading natural potentials, brownfield sites can serve as development land after regeneration. Geothermal water at a temperature of 32°C may, in the course of technological progress, prove a source

of district heating or even a basis for developing spa facilities. Cultural potentials are more diverse, including buildings, the technical heritage, e.g. warehouses and vehicles formerly used in mining, the local identity marked by solidarity, diligence, and involvement in mining, art works reflecting the mining tradition, local cuisine, traditions and industrial expertise. Other cultural potentials include the railway network ensuring environmentally friendly passenger and freight transport. In the economic sector the region could benefit from the high proportion of university students, junior graduates and professionals, and the established support for business development (RDP 2007; SORS 2009).

Tackling Structural Change – Regional Development Strategies

The first strategy document concerned with developing regional potentials dates back to 1995, when a memorandum on cooperation in regional development was signed between the municipalities of Litija, Radeče, Hrastnik, Trbovlje and Zagorje ob Savi. At that time the Zasavje region was among the first Slovenian regional initiatives to adopt a comprehensive approach to regional development, which also resulted in its joining the EU technical support programme Phare in the same year. A year later the regional development centre was established which, in cooperation with companies, public institutions and professional consultants, has been in charge of policy making and delivery. The first strategy was entitled *Zasavje 2000+* (RDP 2002). Initiatives on mine closure and the rehabilitation of degraded mining areas also got under way.

Mine closure acts and interconnected measures

Mine closure in Zagorje began in 1993. The relevant act (1995) planned to spend € 31.25 million over the period 1995-2000. Finally € 51.5 million were granted, which also covered the € 13 million owed to the former national mining company. Funds were allocated as follows: almost 33% for the preparation of project documentation and shaft closing operations, 33% for the social programme, 21% for production costs until closure, and 13% for ecological rehabilitation (Rozina 2005). The results include the establishment of a water control system, reforestation of the area with cherry trees, conversion of the pithead into a museum exhibition space, demolition of the largest mining building complex on the site, transformation of 6.6 hectares into a business zone, and establishment of a recreational area and park.

For the Trbovlje-Hrastnik mine, still in operation, closure and rehabilitation began in 2000 (Act 2000). Besides providing funds for regional transformation and reconstruction, the act included separate programmes for mine closure covering technical aspects of closure and ecological reclamation. The act also guarantees funds for compensating direct damage caused by thermal power plant operation. Altogether, some € 20 million were planned to be invested in the region over the period 2000-2015 to provide the physical conditions for new acti-

vities such as a business zone and the development of infrastructure for economic development, e.g. business support programmes, business incubator, and a technological centre. A grant scheme and regional job club were established to stimulate the development of human resources (Fain 2005). Rehabilitation included demolition of buildings, primary recultivation, landslide prevention, and crack sealing using a mixture of ash and water.

Regional development programmes

The first regional development programme was adopted in 2002 for the period 2000-2006 on the basis of the Promotion of Balanced Regional Development Act (1999) and sets future development objectives and measures. The document is divided into two parts, a strategic programme and a section on implementation. The first generation programme addressed the broader Zasavje region, including the neighbouring municipalities of Litija, Šmartno pri Litiji and Radeče, whereas the second generation, covering the period 2007-2013, addresses only Zasavje as defined in the NUTS3 classification. For the first period from 2000 to 2006, investment amounted to € 175 million, of which 20% were provided under the national budget, 15% by municipalities, 25% by private investors, and 40% by European Structural and Cohesion Funds. This funding covered three issue areas: € 83.5 million for improvement of the quality of life, € 66.8 million for the economy, and € 25.0 million for human resources and support framework. A guarantee scheme for Zasavje was also established to support small business development providing long-term loans for small and medium size companies for investment or renewal of assets (RDP 2002).

The second regional development programme from 2007 to 2013 has set the following goals: to improve the quality of life, support healthy businesses and new activities, establish new infrastructure, build on creativity, protect the environment, empower educational organizations, and encourage the population to remain in the rural area outside the town. In comparison to the first programme, the second one structured funding in greater detail, setting six priorities headed by the economy (see Fig. 3). The financial plan totals € 730 million, of which 6% is to be provided by municipalities, 45% by EU funds and the national budget, and 49% by "others". Mining related projects under the programme include, for example, revitalisation of miners' housing estates (one in Hrastnik and one in Trbovlje; RDP 2007).

Although the regional development strategies sound promising, the national government does not necessarily support regional ideas. For example, under national energy policy (Memorandum 2009) the government has started to diminish the role of the Zasavje region in energy production, which relies on the obsolescent thermo power plant. To prevent job losses and point the way to an alternative course, all important regional actors (chamber of commerce, municipalities, deputies, regional development centre etc.) signed a memorandum asserting the importance of the Zasavje region as an energy supply region. They offered the following alternatives to maintain this status: construction of a gas power plant with the option of upgrading to an integrated gasification combined cycle, renewal of the existing plant

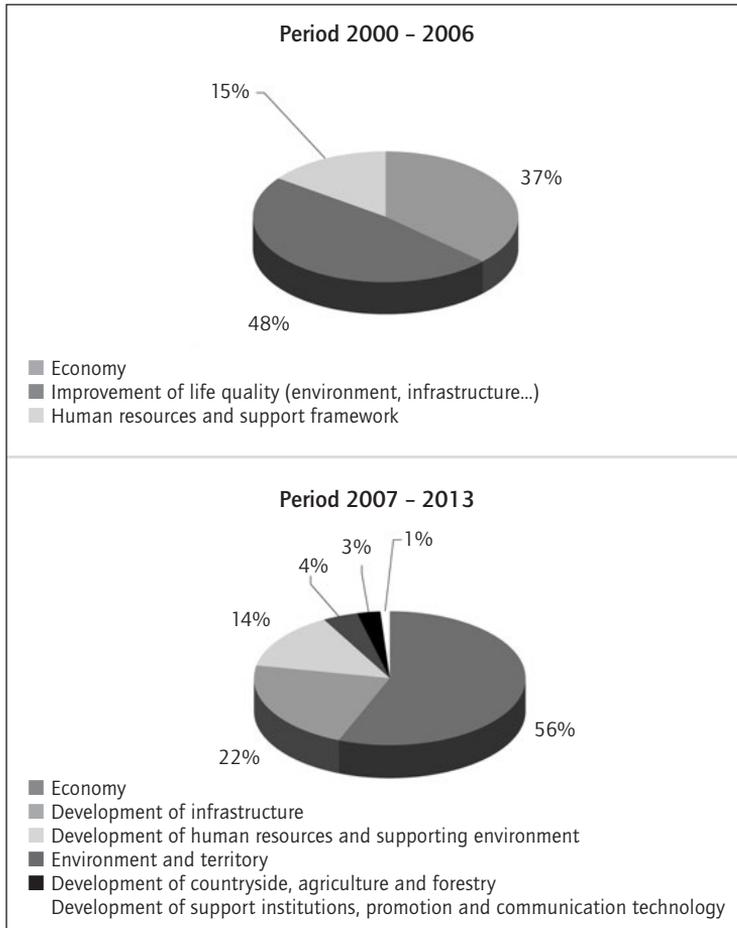


Fig. 3: Point of expenditure and share of funds spent in two consecutive regional development programs (RDP 2002; RDP 2007)

which would then supply heat for the whole Zasavje region, and construction of a hydro power plant on the Sava river. If implemented, the new installations would produce 15% of all Slovenian electricity, as against the present 6%. Also planned is the use of renewable energy, a research and educational centre, and a faculty of renewable resources (Memorandum 2009). Two projects have so far been carried out in the field of renewable energies: for biomass production, the Trbovlje-Hrastnik Mine Company has planted a small degraded area (1.5 ha) with fast growing salix as a raw material for biomass products, a pilot project in Slovenia along with the Velenje project. The area available has proved too small for economically efficient production (Klančičar Schneider 2010). The potential use of geothermal energy has been examined in Zagorje municipality, where a small research unit has been established to explore the possibilities of geothermal energy, primarily for district heating (RDC 2010).

Municipal spatial planning

Local development strategies are not only the subject of regional planning and political lobbying but are also integrated into municipal spatial planning. Spatial planning in Slovenia is still in a transformation phase, and at present building permission is granted under plans dating from 1984. Legislation has suffered delay; the latest spatial planning act was adopted only in 2007. Since regional spatial planning is not defined by law, there is no link between the regional development programme and municipal spatial plans. Only Zagorje ob Savi has so far adopted a new municipal spatial plan (MSP of Zagorje ob Savi 2010) while the other two municipalities are still struggling with the lengthy and complicated process of plan preparation. During the process the Trbovlje-Hrastnik Mine Company established sound cooperation with municipalities to jointly define future land use in keeping with the wishes of local residents and potential users. The plans for all three municipalities, two in draft form, focus on improving the infrastructure, rehabilitating degraded industrial and mining areas, renewing older housing estates, developing central services, and enhancing the quality of life (accessibility, green and recreational areas). The Trbovlje plan provides for the restructuring of existing business zones and the creation of new zones in the post-mining areas and improved use of the rich post-mining industrial heritage (buildings and equipment, shafts, old housing estates, legends) by inclusion in the overall tourism concept for the area. To free new land for development, the municipality also decided to relocate existing business from the congested centre to new sites in rehabilitated post-mining areas (MSP of Trbovlje 2010). In Hrastnik the plan focuses on environmental improvements – mitigating air pollution, rehabilitating degraded post-mining areas (MSP of Hrastnik 2010).

Actors and their interaction

General strategies, such as a regional development programme or a municipal plan, might not at first glance seem that important to mining. However, such planning documents show that regional mining potentials are to some extent integrated in strategic concepts but not taken as a whole. They are exploited in unconnected projects with no overall strategy mainly due to the lack of an urban renewal tradition, as well as policy and funding in Slovenia. General guidelines for spatial development are laid down by the Spatial Development Strategy of Slovenia and Spatial Order of Slovenia which both date from 2004 but which have had no practical impact. The implementation of strategies usually depends on other factors, such as the actual availability of funds and resources, and above all a willingness on the part of actors to cooperate. The actors with the most influence on regional development are the regional development centre, mayors and enterprises. In case of the Zasavje region, national government also plays an important role through ownership of the mining company, national energy policy, and development grants to the region.

The Regional Development Centre in Zasavje is one of some 15 Slovenian development agencies in charge of preparing the regional development programme and coordinating and

monitoring development. The most important from an organizational point of view is the Council of Zasavje Region composed of mayors, which adopts the regional development programme after confirmation by municipal councils. As shown in Fig. 4, the second most important is the regional development council composed of representatives from municipalities, companies, and civil action groups. It mediates in matters concerning human resources, infrastructure, economy, environment and spatial planning, and the agriculture committee (RDC 2011). Less influential in the region are non-governmental organizations, experts, and scientific institutions. There is no scientific institution in the region that would focus primarily on mining and regional development. Research therefore has to be undertaken by experts from outside the region.

As far as public participation is concerned, there is a network of NGOs in the region, MREST, which brings together 77 organizations in such fields as sport, tourism, and culture. Otherwise, public participation in Slovenian is still limited to consultation and public hearings. More active engagement is usually provoked by the NIMBY effect. People do not cooperate in preparing regional development programme if they are not officially on board, although various studies have revealed that interest exists (Marot 2005; Klančičar 2006).



Fig. 4: Actors in the Zasavje regional development process strength of legitimate power

Conclusion

As the chapter has shown, regional actors have invested substantial effort in the necessary strategies and in inspiring the reinvention of the region after mining ceases. However, the outcome to date falls well short of a "new Zasavje". There are a number of obstacles to strategic planning.

One of most alarming issues to be resolved is certainly the ownership of mining land. At first the government guaranteed that the ownership of former mining land would pass to the municipality but now it is mostly transferred to the Farmland and Forest Fund of the Republic

of Slovenia. The fund is a national institution which, due to EU rules on the national share of agricultural land, has no intention of selling this newly acquired property. Municipalities, however, have a right of pre-emption, but the uncertain circumstances limit their scope for planning future land use or, for that matter, investing in any additional regeneration (Rozina 2009). The second problem is financial: the issue of project co-funding by government. Conditions are usually too stringent for Zasavje companies, already exposed to economic crisis and mine closure, so that the regional council proposed amending article 35 of the act on regional development to ensure favourable conditions for eligibility. But this was rejected by the government. Thirdly, the government provides no support in the form of funding or programmes for rehabilitating degraded land. The law on public-private partnership is a welcome improvement; but the inexperienced actors make little use of it.

The most significant impact of the ownership issues is on economic opportunities. Only partially improved land is not attractive for new activities; investors from outside the region have therefore shown little interest. As far as outmigration and growing daily commuting are concerned, Zasavje residents are likely to continue having to find work outside the region. Lack of interest in investment on the national level has to do with the poor image of the region in Slovenia, and on the international level with the competitiveness of other former mining regions, which can offer more space and more attractive development incentives. The inhibition of economic development may cause further negative demographic trends such as aging, brain drain, and the outmigration of the active population. In the field of new and green technologies, where mining regions are currently investing intensively (see Part III), investment is moderate. The use of renewable energies is limited, for example, because energy companies in municipalities have long-term contracts to supply power and heat from fossil fuels. The region's importance could also suffer if administrative regions are introduced, probably leading to the Zasavje region being incorporated in the larger administrative Ljubljana region.

At first glance, the situation of the Zasavje mining region does not look very promising. The ReSource project provided an opportunity for comparison with other mining regions at the transnational, Central European level. The demographics show that in comparison with others, e.g. Zwickau-Lugau-Oelsnitz (-17%) and Mansfeld-Südharz (-20%), the region has not lost a great deal of population (-6%) between 1991 and 2008, has close to average density (average 178, Zasavje 170), and engages in similar types of mining as Zwickau-Lugau-Oelsnitz and Wałbrzych. It is one of the regions where mining has not yet come to an end, although cessation is planned. In rehabilitation, Zasavje is "a moderate achiever": it has established institutions to handle the transformation from a mining to a post-mining region, but they have yet to develop their full potential. In particular, they lack knowledge and experience in rehabilitation and land management; on the other hand they are successful in delivering human resources projects. Public awareness, stringent EU environmental legislation, the availability of EU funds, and relevant projects (purifying plant, desulfurisation facility, Natura 2000 sites and regional parks), and the quality of the environment have increased, bringing the

region closer to the situation in German and Austrian post-mining regions. As far as job losses in the secondary sector are concerned, the region, together with Mansfeld-Südharz (-20%) and Salgótarján (-20%) are the three regions recording the greatest decline (-19%). Unemployment is not as high as in Mansfeld (almost 18%, 2008) but is still above the national average (Harfst et al. 2010).

The study has shown that the region is well on the way to reinventing itself and that more work needs to be done on exploring and exploiting existing potentials. The current, more innovative projects in the field of renewables (geothermal and biomass study) and business initiatives, e.g. in tourism the creation of the new trade mark, a study on marketing the region as a sport tourism destination, could provide some long-term economic solutions and create jobs. Securing employment is the major factor in retaining the region's population. If the worst comes to the worst, if, namely, mining, the thermo power plant, and other remaining local industries were to close down simultaneously, the region could well become a dormitory suburb of the Ljubljana urban region from which people commute to work. The moderate scenario is more likely to become reality, with the region successfully developing small business, maintaining a moderately dispersed population, but attaining a good quality of life, a well-developed infrastructure and a new identity in which mining will constitute an important component.

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Zwickau-Lugau-Oelsnitz (Germany) – The Long Shadow of Mining

Changing Structures in an Industrialised Region

The region of "Zwickau-Lugau-Oelsnitz" is in Saxony, a state of the Federal Republic of Germany. It is geographically located in the "Ore Mountain Basin" (*Erzgebirgisches Becken*), between the Saxon Uplands (*Sächsisches Hügelland*) to the north and the "Ore Mountains" (*Erzgebirge*) to the south. The region is not an official administrative unit, but a cooperation initiative comprising nine municipalities representing the biggest former hard coal mining region in eastern Germany. It was founded in 2005 under the name "FLOEZ" – short for "Future for Lugau-Oelsnitz-Zwickau"¹. The acronym indicates the composition of the region, which incorporates two former mining areas: the Zwickau coal field (*Zwickauer Revier*) and the Lugau-Oelsnitz coal field (*Lugau-Oelsnitzer Revier*). Owing to unprofitability, active mining ended in the region already in 1978.

The "Zwickau-Lugau-Oelsnitz" region covers an area of 273 km² and counted 162,959 inhabitants in 2007². It includes the city of Zwickau as regional centre and the eight surrounding suburban or rural communities: Reinsdorf, Mülsen, Lichtenstein, Hohndorf, Gersdorf, Lugau, Oelsnitz/Erzgebirge, and Hartenstein. The fourth largest city in Saxony, Zwickau is the largest municipality of the region and by far the biggest city with a population of 95,841 (2007). It is the region's administrative, industrial and cultural centre, reaching far beyond the Zwickau-Lugau-Oelsnitz area itself. The city is the capital of the administrative district (Landkreis) Zwickau and accommodates various regionally important cultural facilities such as museums and theatres. All municipalities are part of the regional administrative unit Direktionsbezirk Chemnitz, while the nine municipalities are located in two different administrative districts on the NUTS 3 level: "Zwickau" and "Erzgebirgskreis".

1 Already the name indicates the focus on mining traditions – "Floez" is the German term for "seam (of coal)"
2 Data: Own compilation (Source: Gemeindedatenbank Sachsen, 31th of December 2007)

Demographic facts

With the region being situated in the Chemnitz-Zwickau agglomeration, population density is very high: 597 inhabitants per km² (Saxony and Germany: 230 per km²), indicating an urban conurbation. Nevertheless the population has declined in all nine municipalities in recent decades. Since 1990 the area has lost around 18% of its population. The latest forecast predicts a decrease of around 11% between 2006 and 2020, 6% above the average for Saxony³ (see Fig. 1). This trend is coupled with an increase in the proportion of older residents. The total share of the population over the retirement age of 65 rose from 20% in 2000 to 25% in 2007 (see Fig. 2).

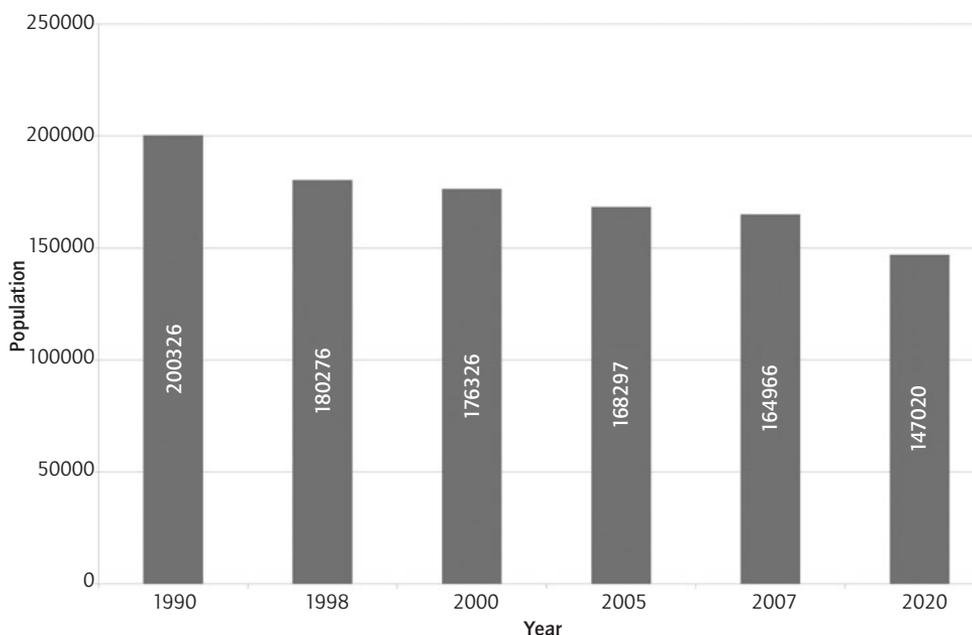


Fig. 1: Population development of Zwickau-Lugau-Oelsnitz region – including forecast
(Data: Statistisches Landesamt Sachsen)

3 Data: Statistisches Landesamt Sachsen (4th Regional Population Forecast – variant 1)

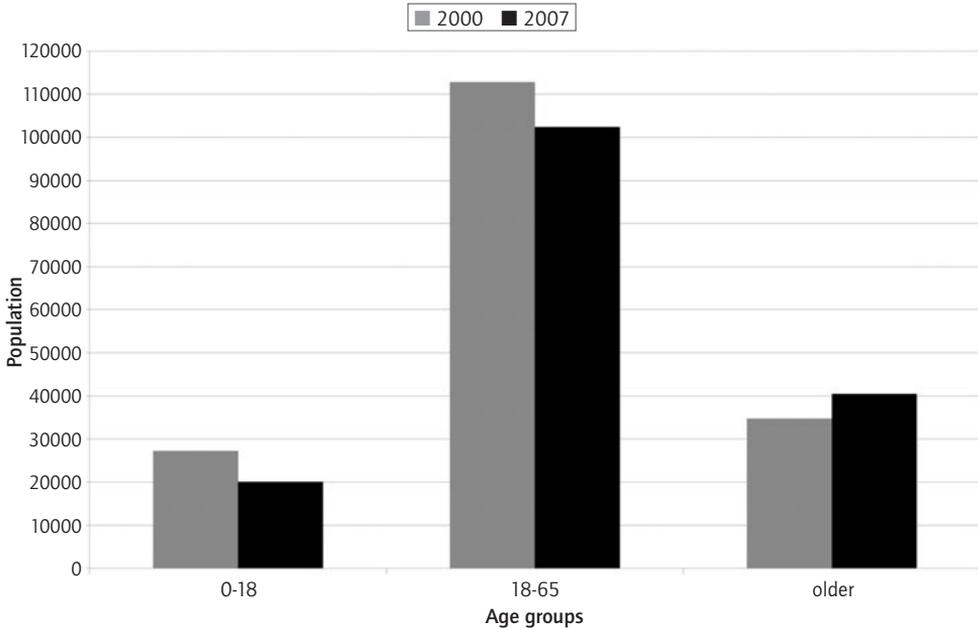


Fig. 2: Population development of Zwickau-Lugau-Oelsnitz region by age groups 2000 – 2007
(Data: Statistisches Landesamt Sachsen)

Economy and Infrastructure

The whole “Zwickau-Lugau-Oelsnitz” area is part of an old industrial heartland in Southern Saxony stretching from Zwickau in the west to Chemnitz in the east. The area saw rapid and intensive industrialisation from the 1850s onwards, making it a centre for various industries such as textiles, manufacturing and coal in Central Europe. The region retained this character under the state-led economic system of the German Democratic Republic (GDR). Like many old industrial regions, the area has experienced a decline in its traditional industrial base in past decades. The closure of mining industries in 1978 was only one marker of structural change, apparent even before German reunification and integration into a market economy in 1990.

Next to the coal industry, the region of Zwickau-Lugau-Oelsnitz is a traditional location for metal processing, textile industries, and car manufacturing. The last, in particular, remains a major economic pillar for the region: today the Volkswagen Group is the region’s biggest employer. The factory in Zwickau/Mosel employs about 6,200 people, with additional jobs in various component suppliers. This has given the region a strong economic base, which generates investment and jobs (see also Fig. 3). The regional GDP per employee in the Zwickau area is accordingly slightly higher than Saxon average (2007: Zwickau: € 49,051, Saxony:

€ 47,791, Germany: € 60,926)⁴. The unemployment rate for the next available statistical unit (*Agentur für Arbeit Zwickau*) was 12.5% in June 2009. This was slightly lower than the Saxon average (12.8%), but considerably higher than the national average of 8.1%⁵. Also important for regional economic development is the prestigious University of Applied Science in Zwickau (*Westfälische Hochschule*), specialised in engineering and manufacturing, focusing especially on the automotive industry.

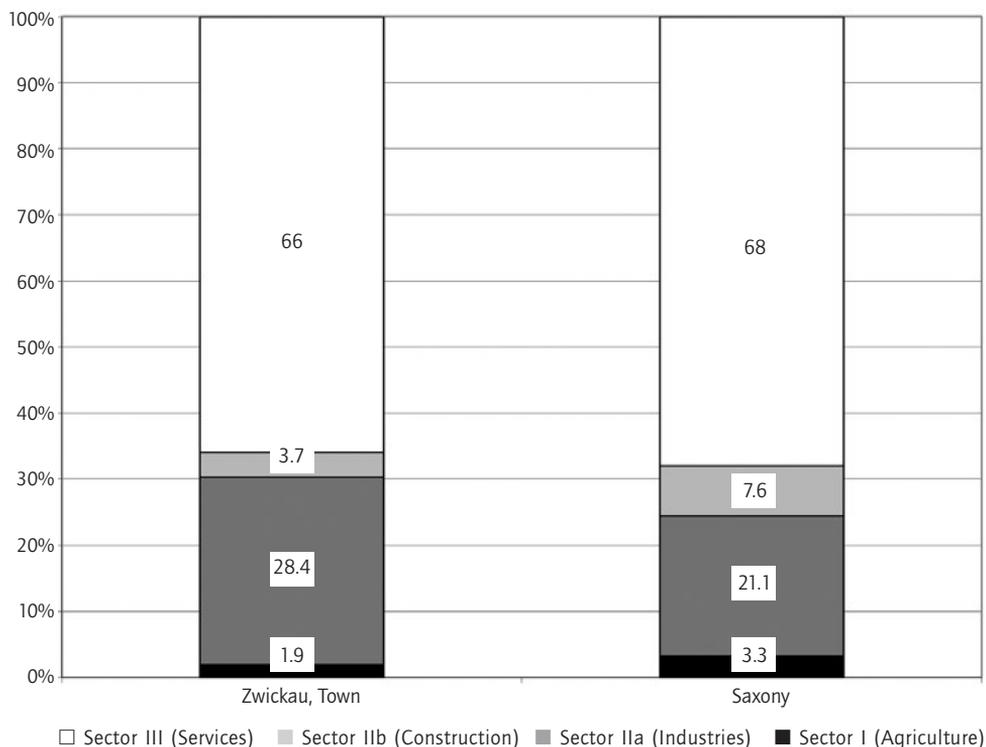


Fig. 3: Employment by major economic sectors in the Zwickau-Lugau-Oelsnitz region, 2007 (Data: Statistisches Landesamt Sachsen)

The whole region is well connected by various national motorway and train links, making it a central location in Saxony and the whole of South-Eastern Germany. Of special importance is the region's position along the Saxon East-West transport axis (motorways and train links) providing good access to all other Saxon agglomerations and their infrastructure, such as the region's main airports in Leipzig and Dresden.

4 Data: Statistisches Bundesamt

5 Data: Bundesagentur für Arbeit

Mining and its Heritage

The region contains the heart of the former coal-mining-region "Zwickau-Lugau-Oelsnitz". Mining in the area began in the 14th century and hard coal allowed the region to develop into one of the most important industrial regions in Central Europe during the Age of Industrialisation. During the mining period from ca. 1346 to 1978, some 207 million tons of coal was extracted in the Zwickau coal field, while the "Lugau-Oelsnitz" field produced 142 million tons between 1844 and 1971. Mining was underground. Closure of the "August Bebel" coking plant in Zwickau marked the end of the last mining-related industry in 1992. Under the state-led GDR economic system, fine mechanics were introduced to the region as a substitute after mine closure (Sächsische Landesstelle für Museumswesen 2001).

One of today's greatest challenges for the region with regard to mining activities is the incomplete rehabilitation of former mining sites. After mine closure, most shafts were reinforced, dumps only partly afforested or abandoned to spontaneous vegetation. Underground problems were neglected. This has resulted in various long-term difficulties. The main concerns are the rising groundwater levels and the danger of toxic washout, as well as subsidence caused by unstable mining galleries. These problems cause persistent and reoccurring damage to buildings and infrastructure and are a major obstacle to town and infrastructure planning and development in the region (Harfst et al. 2009).

One of the most crucial problems for the Zwickau-Lugau-Oelsnitz region is the lack of outside funding for the new phase of rehabilitation. The area is not eligible for aid from the federal funding schemes for rehabilitating former lignite and uranium mining districts in the GDR (Harfst & Wirth 2011). Neither the federal nor state government is legally responsible for rehabilitation in the hard coal mining region of Zwickau-Lugau-Oelsnitz. Funding is therefore only available in the case of an imminent threat to public health and safety. This general lack of financial support hampers rehabilitation and obstructs the redevelopment of various brownfield sites. Mining-related damage also imposes a considerable financial burden on the communities affected. The nine municipalities have so far spent around € 10 to 15 million on damage to infrastructures due to surface movement alone (Harfst et al. 2009).

Utilising Post-Mining Potentials

Regardless of the difficult nature of the mining legacies and the so far unregulated rehabilitation process, the region has advanced various innovative ideas on how to exploit the remains of the industrial past under the FLOEZ initiative. The region has many brownfield sites such as remediated heaps and dumps, disused coal railway terminals, power stations and other mining-related buildings, which can be regarded as cultural potentials and which are available for redevelopment. Accordingly, some projects have provided for such areas new purposes,

such as a motocross track in Lugau on former slag heaps and various thematic hiking and biking trails through former mining landscapes. Moreover, afforested heaps are used as green structuring elements for commercial areas or have been upgraded with touristic infrastructures (lookout tower on a heap in Oelsnitz). These examples show a willingness to find new purposes for “old” industrial landscapes and to integrate their potentials into local development strategies. Plans have also been drafted for the re-use of old infrastructures, such as a business park on the site of the old “Martin-Hoop” pit in Zwickau and the redevelopment of the old coal railways terminal into a public park (Oelsnitz). In addition, the region has various museums and exhibitions concerned with mining and the “Saxon Museum of Hard Coal Mining” in Oelsnitz, is a major tourism attraction for the area (Fig. 4). Although located outside the main tourist areas of the Ore Mountains, the region comes under the important touristic marketing label “Erzgebirge”. The FLOEZ initiative has also tried to strengthen the touristic potential of the region offered by its mining heritage, by developing a joint regional marketing campaign for fairs and other touristic events under the heading “On the track of black gold” (*“Auf den Spuren des Schwarzen Goldes”*).



Fig. 4: Saxon Museum of Hard Coal Mining in Oelsnitz/Erzgebirge (photo: IOER/Bieberstein)

Natural potentials have also been considered for exploitation. On the basis of existing experience in the broader region (geothermal energy project in Bad Schlema), the city of Zwickau has secured funding to drill for warm mine water to be used for energy production in 2011. Some proposals have been made for using brownfield sites to produce wood and crops for thermal biomass-based energy production.

In general it can be said that promising ideas for tapping such potentials have been developed in the "Zwickau-Lugau-Oelsnitz" region. The FLOEZ cooperation initiative has played a key role. Nevertheless, few of these ideas have yet taken project form. This is due firstly to the lack of funding but also has to do with management and steering capacities in the region itself.

Managing Post-Mining Potentials – Governance and Steering Capacities in the FLOEZ region

All the concepts and actions mentioned have been developed under the "Integrated Development Strategy for the Zwickau-Lugau-Oelsnitz Area" (*Ganzheitlich integrierte Entwicklungsstrategie für den Teilraum Zwickau-Lugau-Oelsnitz*) since 2006. The plan focuses on establishing institutionalised structures (regular meetings, steering and thematic working groups) and defines specific areas of intervention for the region through the FLOEZ cooperation initiative. It also focuses explicitly on the heritage and potentials of former mining industries (see Fig.5).

Field of Action	Projects
Integrated land-management	<ul style="list-style-type: none"> • Analysis of potential problems for re-use, development of solution strategies • Support of intermunicipal development strategies
Tourism	<ul style="list-style-type: none"> • Joint presentation of the hard coal mining district • Development of package offers • Expansion of the thematic hiking trails, linkage to other hiking and bike routes • Investment program for single-day tourism • Involvement of schools • Development of a regional label
Agriculture and forestry as a possible re-use of mining areas	<ul style="list-style-type: none"> • Feasibility study for the joint management of woodland in the region Chemnitz-Zwickau with special attention on the problem of mine dumps in the FLOEZ region
Demographic Change/Development of Infrastructures	
Costs of Rehabilitation/Costs of Service Supply and Waste Disposal	

Fig. 5: Projects in the strategic plan for Zwickau-Lugau-Oelsnitz region, overview (Harfst et al. 2009)

The document is the culmination of long cooperation between local and regional actors since the mid-1990s. With the establishment of a first regional development strategy ("Regional Development and Action Plan") in 1997 and FLOEZ in 2005, the region was able to develop an effective, highly integrated cooperation structure, which created a dense regional network (Harfst et al. 2009; Fig 6).

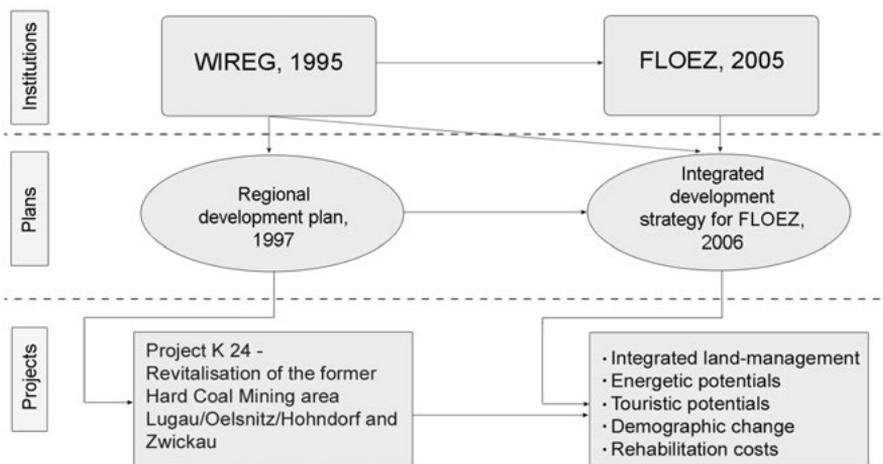


Fig. 6: Interplay between supra-regional and regional initiatives in the Zwickau-Lugau-Oelsnitz area in the past time (Harfst et al. 2009)

Actors and Interplay

Central to this process was the "*Wirtschaftsregion Chemnitz-Zwickau*" (WIREG), a regional development body in South-Western Saxony. The WIREG included the cities of Chemnitz and Zwickau, as well as the administrative districts Zwickau and Erzgebirge. The body was created in 1995 as a joint inter-municipal initiative and was the main actor for regional economic development in the area. All municipalities participating in FLOEZ were also in the WIREG. The WIREG acted as an important regional facilitator and moderator for events and development planning in the former mining region and actively initiated the establishment of the FLOEZ cooperation in 2005. WIREG was dissolved in 2010 due to changes in district boundaries and resulting administrative conflicts.

While the WIREG operated on the regional level, the FLOEZ includes all important local administrative stakeholders. Also included are private experts with a mining background who can provide expertise and ideas on exploitation of the mining heritage. The two regional cooperation initiatives have featured mature forms of organisation and been well established with those involved meeting regularly in a close group of key actors, mainly from a planning

and administrative background. In this context some major local actors have also provided active leadership, resulting in participation by the region in various EU-funded projects (i.e. INTERREG projects REVI, READY). Some of these actors have also established a wide network of contacts on mining questions, involving universities (Polytechnic University Freiberg), foundations, external experts, the Saxon mining authorities, and other mining regions across central Europe (MINEC).

Nevertheless the process has been not without setbacks and difficulties. Despite the mature forms of cooperation in place, the region has in the past had serious difficulty in realising concrete projects, owing partly to the nature of the regional network structure itself. The whole networking process is clearly based on actors from politics and administration. This has led to a situation in which all important state-level actors are represented in the decision-making process while clearly differing in the importance they assign to post-mining potentials. While some smaller municipalities (i.e. Oelsnitz) have been at the forefront of developing such potentials with integrative leadership by key actors, others, including the biggest city Zwickau, have been more hesitant. They see less symbolic value in the mining heritage and have given only limited support to projects based on mining potentials. The result has been a lack of vision and leadership in the FLOEZ initiative, despite the dense network. This is reflected by internal political disagreements, which led to the collapse of some projects. In Zwickau an early attempt to establish a geothermal energy project failed ("Castle Osterstein" project) and municipalities were unable to reach agreement on joint forest management, a pre-condition for biomass production in the region (Harfst et al. 2009). What is more, the network failed to lobby successfully for state-co-funding. Generally this lack of practical project implementation has reduced the network's activities in recent years. Following liquidation of the WIREG in 2010, one of the main regional facilitators of change in the region is now lacking, producing an administrative and organisational gap in the region (Harfst et al. 2010).

Very recent developments in the region underline the constant dynamics of regional development issues: in a rather unexpected move, the Saxon government has agreed to free some European Regional Development Funds (ERDF) for rehabilitation purposes in the Zwickau-Lugau-Oelsnitz area. This commitment comes after years of intensive political lobbying from local and regional actors and can be seen as a major success in the network activities under both WIREG and FLOEZ.

Conclusion

The “Zwickau-Lugau-Oelsnitz region” includes the biggest former hard coal mining region in Eastern Germany. Despite closure of the mines as long ago as the late 1970s, the region has continued to be marked in many ways by the mining heritage.

The diversity of the regional economy today, above all the car manufacturing cluster, coupled with the research capacities offered by a university of applied science in Zwickau, make the region comparatively well equipped for successful economic development some 35 years after the end of active mining. The region has also developed strong organisational structures through the FLOEZ cooperation initiative with the clear aim of realising options for developing the former mining region. This network includes all relevant political and administrative actors from the region. These structures have allowed local actors to identify and exploit certain cultural and natural potentials, namely in the field of geothermal energy production (drilling in Zwickau) and tourism (i.e. joint marketing label, thematic hiking trails).

Nevertheless the region undeniably shares the problems of many other old industrial regions. High unemployment, a problematic demographic structure, and unresolved rehabilitation problems in connection with former mining activities remain challenges for the future. Despite the region being located in one of the more economically dynamic areas of Saxony, development still has to cope with moderate economic growth and tight public finances. Moreover the region has still not managed to shed the “black” image of its coal-mining past.

Though the mining heritage unites regional actors through similar problems and interests, municipalities in the region differ in their views on the potentials of this heritage. As a result, not all actors have played an active role in the FLOEZ initiative. The lack of investment in FLOEZ has weakened the project. This can be explained by “generational change” and differing political agendas in municipalities. Many older office-holders with personal connections to the mining industry have retired in recent years. The narrow basis of cooperation, limited as it has been almost exclusively to actors from politics and administration can be considered a problem, especially when different aims are pursued. This shows that even such a well-established and institutionalised background for regional development and cooperation as the FLOEZ initiative is not self-sustaining and depends on the constant involvement of and support from all stakeholders, especially those from outside the local context.

The failure to realise the full potential of the region’s network activities in the form of concrete projects and liquidation of the facilitator WIREG have severely weakened the overall capacity of the network and therefore hampered regional development efforts. When one considers the problems the region is likely to face in the future (on-going economic restructuring, dwindling financial support, demographic features), such a loss in network capacity can hardly be afforded. Against this background, using ERDF funds for catch-up rehabilitation of mining damage could give new impetus to the FLOEZ initiative. But it remains to be seen if the structures can be further developed to provide effective management of post-mining potentials.

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Part III: Good Practice Analysis

Using the Potentials of Post-Mining Regions – A Good Practice Overview of Central Europe

Introduction

Problems in the post-mining regions of Central Europe range from degraded land and landscapes, huge insecure dumps and heaps, surface cracks, soil pollution, lowering of the groundwater table, deforestation, and damaged cultural potentials such as oversized, decrepit machinery, abandoned mine shafts to socio-economic problems like unemployment or population decline (Lintz et al. 2005; Harfst & Wirth 2011; see part II in this volume). There is no common prescription for tackling the development of post-mining regions after mine closure nor is there a common definition of good practices or policy in this field. Several European projects or studies, such as READY (2006), REKULA (2006), IBA (2010), "100 Things to do with a hole in the ground" (Pearman 2009), have focused on revitalising post-mining land and society, but they have failed to assess the benefits and delivery of projects, and the main obstacles project partners have to overcome. Stranz (2010) and Fischer & Stranz (2011) have conducted a case study analysis of the good practice project Eden, developing an impact analysis and guidelines for successful project implementation applicable worldwide. Digby (2010) provides an overview of successful post-mining regions, including a range of good projects like Eden (Great Britain), Zeche Zollverein (Germany), and Wielizcka mine (Poland). Furthermore, the literature offers several conceptual approaches, including guidelines on how to proceed with post-mining potentials. Pearman (2009) suggests that every rehabilitation project requires community involvement. In READY, policy makers rely on seven "golden rules" for rehabilitating post-mining landscapes, e.g. to begin planning for redevelopment when mining sites are still in operation. The International Building Exhibition Fürst Pückler Land laid down 10 principles for treating post-mining landscapes (Scholz & Schwartze 2010). This project sets an example for using resources, fostering identity, shaping the regeneration process, and building organizational strategy for regional development. Nevertheless, a broader overview of experience with rehabilitation and development projects in post-mining regions is still lacking.

The lack of a structured overview of these initiatives, networks and projects on the use of post-mining potentials has led us to develop a special work package under the ReSource project focusing on their analysis. The aim was to systematically collect, analyse, evaluate and

present extant experience with the use of post-mining potentials throughout Central Europe. Cases of good practice projects and centres of knowledge (competence centres) were sought. Research focused on the following questions: What potentials do post-mining regions have and how are they utilized? Are there any differences between countries in the use of potentials and what are they? Institutional support for the projects and interplay among actors were also investigated. Centres of knowledge were examined in addition to successful good practice projects, as they can provide organizational and scientific support for projects.

The chapter first introduces the methodology for data collection, analysis and evaluation. This is followed by a section on empirical findings about using the potentials of post-mining areas with the emphasis on natural potentials, cultural potentials, and integrative approaches¹. Organizational aspects and research initiatives are presented separately, followed by a section on the evaluation of results. The problems arising during project implementation and the benefits of the project are thoroughly discussed. The transnational coverage of projects also gives insight into differences in project approaches and implementation among Central European countries and the progress of their knowledge in tackling post-mining regions.

Methodology

Collection of data

The data for evaluation were collected by questionnaire translated into all project languages and returned by academic partners and project managers. The questionnaire on good practice projects comprised 22 questions in four sets: basic information about the project, its approach, results, and contact information. The questionnaire for centres of knowledge was shorter (14 questions) with three sets of questions: basic information about the centre, its knowledge/experience pertaining to mining regions and contact information.

Altogether, 50 good practice projects and 23 of centres of knowledge were collected and analysed. As shown in the Fig.1, the greatest number came from Germany (23 of 50), all other countries contributing far fewer examples. The rather small number of cases in these countries can be attributed to the agreement between the partners to set the number of cases in proportion to the size of the country and population. The state of progress in the use of post-mining potentials also played a role. Germany, in particular, offers outstanding examples. In certain cases, such as Slovenia, the size of the country and the relatively small number of mines are decisive factors.

1 The term integrative is used to describe the two following aspects: integration of various and multiple actors, engaged in the development and use of different sources and potentials available for development (Černič Mali et al. 2010d).

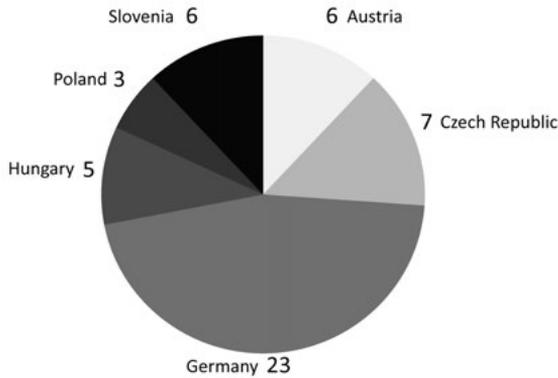


Fig. 1: Distribution of cases among Central European countries

Conduct of the survey in six Central European countries was hampered by several factors. One common problem was the reluctance of the relevant institutions to co-operate. For older projects few or no data are available, so it was difficult to fill in their profile. Since respondents in the centres of knowledge survey were mainly professionals from the field, the response rate was better and their willingness to participate enhanced by their interest in exchanging information, improving communication, and promoting their centres.

Data analysis

The data collected were then analysed. First, a cross-country analysis of the use of post-mining potentials, including detailed examination of the use of natural potentials, cultural potentials and integrative approaches was carried out. Secondly, the evaluation of project quality as defined in good practice projects was conducted to ensure that the final knowledge database provided sufficient information about the quality of the projects and their transferability. Finally, the data was integrated into a web-based post-mining knowledge base (see www.resource-ce.eu) which targets mining municipalities, regions, associations, policy makers, administrations, European bodies and the scientific community. An example of a project profile is illustrated in Fig. 2.

Good practice concept and evaluation of data

There is no common definition of what is a good practice project or policy. The closest definition available is that *"a best practice is a technique, a process or an incentive with the intention to look for the successful practices which worked in solving the problems in specific matters"* (Simiyu 2011). Best practices are also defined as the most efficient (least amount of effort) and effective (best results) way of accomplishing a task, based on repeatable procedures that have proven themselves over time for large numbers of people. The term describes the process of developing and following a standard way of doing things that many organizations can use for management or policy.

Good practice project number:	GPP_MZLU_04	Reference number on the map:	41			
Title of the project: Golf Course Sokolov						
Project location: among Sokolov, Dolní Rychnov and Březová, Microregion Sokolov-East, Karlovy Vary Administrative Region, Czech Republic						
Type of potential: natural potential						
Type of project: recreation facility, sport						
Project start / Project end: Oct.2002 / May 2006						
Main objectives of the project: to create an exemplary project continuing with the reconstruction and reclamation of the land after brown coal strip mining						
Main activities of the project: specific reclamation of postmining area, building of a golf course						
Approximate budget range for project implementation? 300.000 € less than 500.000 €						
<i>Some of the data gathered in the good practice analysis is not shown here...</i>						
The mine was ... an open cast						
Type of mining that took place: brown coal						
Size of the area: 100 ha (the course itself), Silvestr site 270 ha						
Percentage of the former mining area: 37%						
Major environmental problems: problems connected with mining (desert landscape)						
Most relevant legislation, policies, programmes which directly made the project implementation possible and their levels (i.e. local, regional, national, EU) - General Plan of Reclamation after Coal Mining in the Sokolov District, regional - Remediation and Reclamation Plan (for 5 years, approved by Ministry of Environment), regional						
New economic activities introduced by the project: golf academy, club house with restaurant, bar, VIP lounge, a part of sports and recreational area near the swimmingpool Michal (building of zoo, park, biocentre, ecological and geological trails is planned in that area)						
Number of new jobs created as a result of the project: 15						
Acceptance of the project by local people: yes, largely						
Groups of people that gained / will gain the most from the project: local people, golfers, children of Sokolovská uhelná employees						
What could one learn from this project? possible restoration and recovery of damaged sites						
Evaluation score for each criteria:						
Efficiency	Feasibility	Sustainability	Transparency	Legitimacy	Innovativeness	Transferability
x	x		x			x
Final evaluation score: mostly achieves criteria						
Project information available on-line: http://golf-sokolov.cz http://www.suas.cz						
Profile prepared by Mendel University in Brno.						

Fig. 2: Example of a project profile

Good practice is usually analysed in accordance with a list of criteria that define the quality and characteristics of projects. In this case they derive from similar previous projects and from the theory of quality standards for policy making, impact assessment practice (CEC 2009; Ekins & Medhurst 2006; Jacob et al. 2008), and similar evaluation procedures carried out for projects in post-mining regions (Fischer & Stranz 2011; Pearman 2009; Digby 2010). In consultation with scientific partners in the ReSource project, the authors of this chapter generated the following seven criteria for evaluating "good practice" in the cases under study:

- EFFICIENCY:** The project creates maximum benefits by using minimum resources regarding distributional effects in society and economy. There is on-going control of costs, benefits, distributional effects, effects on competition and market openness.
- FEASIBILITY:** The project takes account of the capacities of the system, namely location, financial and human resources, and administrative framework.
- SUSTAINABILITY:** The project has produced solutions that promote the future use of these potentials. They are local solutions adapted to local circumstances protecting the environment, enhancing the economy and human resources potential, and finally improving living conditions for local residents;
- TRANSPARENCY, OPENNESS:** The community has been sufficiently involved at all stages of preparation and implementation. All information needed to make decisions is available, an on-going dialogue has been established and various techniques used to involve the community. This is important for agreement on future development and shared responsibility.
- LEGITIMACY:** The solution represents a compromise among all stakeholders and actors potentially affected by the results. Local government and local residents are fully committed to restructuring the area.
- INNOVATIVENESS:** The project concept is unique, has generated good design, has thus reinvented the image of the regions, tells an interesting story and is attractive in its originality.
- TRANSFERABILITY:** An idea, a concept can be re-used in similar conditions in different locations and governance frameworks.

Evaluation was based on expert appraisals. The role of experts was assumed by the academic partners in the ReSource project. In general, experts expressed their opinion on whether the project fulfilled a criterion by ticking the appropriate boxes. A simple "yes/no" correlation was chosen for the scope and the nature of the data collected. Since project profiles (each project was described in terms of 15 elements, see Fig. 1) were not created centrally, it was difficult to guarantee the same coverage and quality of content for all projects. To prevent individual subjectivity in evaluation, two expert teams evaluated each case. The final evaluation score is compounded from the scores assigned in three steps of evaluation. In the first step a group of three evaluators from each academic partner examined national cases with which they were familiar. The results were then summed: with at least 2 of 3 ticks, the project was considered to meet the given criterion. The second step was cross-evaluation, with partners assessing

cases from other countries. The whole evaluation process was repeated and the results then summed. The choice of an individual criterion was integrated in the final score only if designated by both evaluation groups. On the basis of the number of ticks assigned to each project, a final score on fulfilment of good practice criteria was given:

___0 – 1: does not meet GP criteria

___2 – 3: only partially meets GP criteria

___4 – 5: mostly meets GP criteria

___6 – 7: fully meets GP criteria

Empirical findings

Potentials Used in Post-Mining Regions – An Overview

The uses to which post-mining land can be put depend on the size of the redevelopment area, the type of mining (open cast/deep mining), and the type of minerals mined, which determine the quality of the land in question. The size of project areas differs considerably from 0.6 ha (Austrian Schwazer Silberbergwerk) to 80,000 ha (German IBA Emscher Park). Some projects are even smaller; in 30% of cases the area could not be specified, e.g. linear projects such as trails, and in another 10% of cases no information was provided. If grouped in classes, 17 project areas are smaller than 100 ha, 6 even smaller than 10 ha, 7 between 101 ha to 1,000 ha and 6 larger than 1,000 ha. In only seven cases did respondents state that a project covered 100% of the former mining area. They include the German Centre of Renewable Energies in Wardt, the Austrian EURONOVA in Arnoldstein, the Hungarian Open-Air Geological Museum Tata, and the Czech Medard recreation and tourist facilities in Sokolov.

There was an almost equal number of underground and open cast mines. As shown in Tab. 1, slightly less than half of mining operations (44%) were underground, 40% open cast, and in 7 cases (14%) both. Not only the excavation technique, but also the minerals mined determine further use. In a third of cases brown coal was mined, in about a fifth hard coal; iron ore, lead, zinc, uranium were extracted in about 5 cases each. In some countries practically only one type of ore is represented, while in others there is a greater variety of mine types.

Tab. 1: Type of mine and the potential used in post-mining regions

Type of potential	Open cast	Underground	Both	Total
Natural potential	9	8	1	18
Cultural potential	4	8	3	15
Integrative approach	7	6	4	17

The types of potential are more or less evenly distributed. Slightly more than a third (36%) were natural, nearly one third (32%) cultural, with a like proportion of integrative approaches.

Fig. 3 shows the territorial distribution of potentials used. For our purposes, natural potentials were defined as surfaces or land, woodland and anything natural elements, e.g. geothermal water. Of 27 cases of natural potentials, 26% concerned geothermal energy or stockpile heat and 15% biomass plantation on mining land, while the majority came under the category "others", mostly degraded land. While some mining regions still suffer from damaged vegetation, polluted air and water, and eroded soil, others have found innovative solutions and approaches for using post-mining potentials, such as hiking, cycling, riding trails or just re-establishing green areas (Černič Mali et al. 2010b).

Cultural potentials are the most widely developed resource, defined as technical heritage, infrastructure, buildings for production and housing, in short anything man-made (see also the explanations in part I of this volume). Intangible potentials such as mining events, mining traditions and mining identity are taken into account. Approximately one third of cases involved mining infrastructure (museums and the like, 22 cases) and tourist routes (21 cases). Mining-related events account for a quarter of all cases (17) and are to be found in nearly every country within the research area (Černič Mali et al. 2010c).

The third group of projects applied integrative approaches. Key actors in degraded urban areas, not just in mining regions, have soon discovered that to overcome inflexible economic structures, unfavourable labour markets, and negative demographic developments, an integrative approach to problems is required. The term integrative describes two aspects: the integration of various and multiple actors in the development and use of resources and potentials. Integrative approaches are multi-dimensional. This is reflected in preparation and decision-making and in multiple objectives e.g. the recultivation of land and the provision of utility services to building sites to attract investors (Černič Mali et al. 2010d). Integrative approaches do not focus on isolated potentials in mining regions but take a more comprehensive approach to exploiting them.

a) Natural potentials

The use of natural potentials differs from country to country. Germany leads the field with 12 cases; 6 cases are distributed among the other countries to the exclusion of Slovenia. Six of the eighteen cases involve geothermal mining water, six land recultivation, five parks and recreation, and three biomass production on mining land. Energy production accounts for more technologically advanced uses of post-mining landscapes. Biomass is used in several ways: mine dumps are transformed for biomass cultivation, and even areas with polluted soils can be planted with fast-growing plants. Rising mine water can be a source of geothermal water used to produce heat or electricity. Water and salt are also used as natural resources.

Projects using natural potentials are usually the most recent in the good practice base. Almost as many have been completed (7) as are in process (6); two were defined as on-going, and for one case no time data are available. Projects are also often described as pilot projects since the initiators are investing in new, innovative approaches.

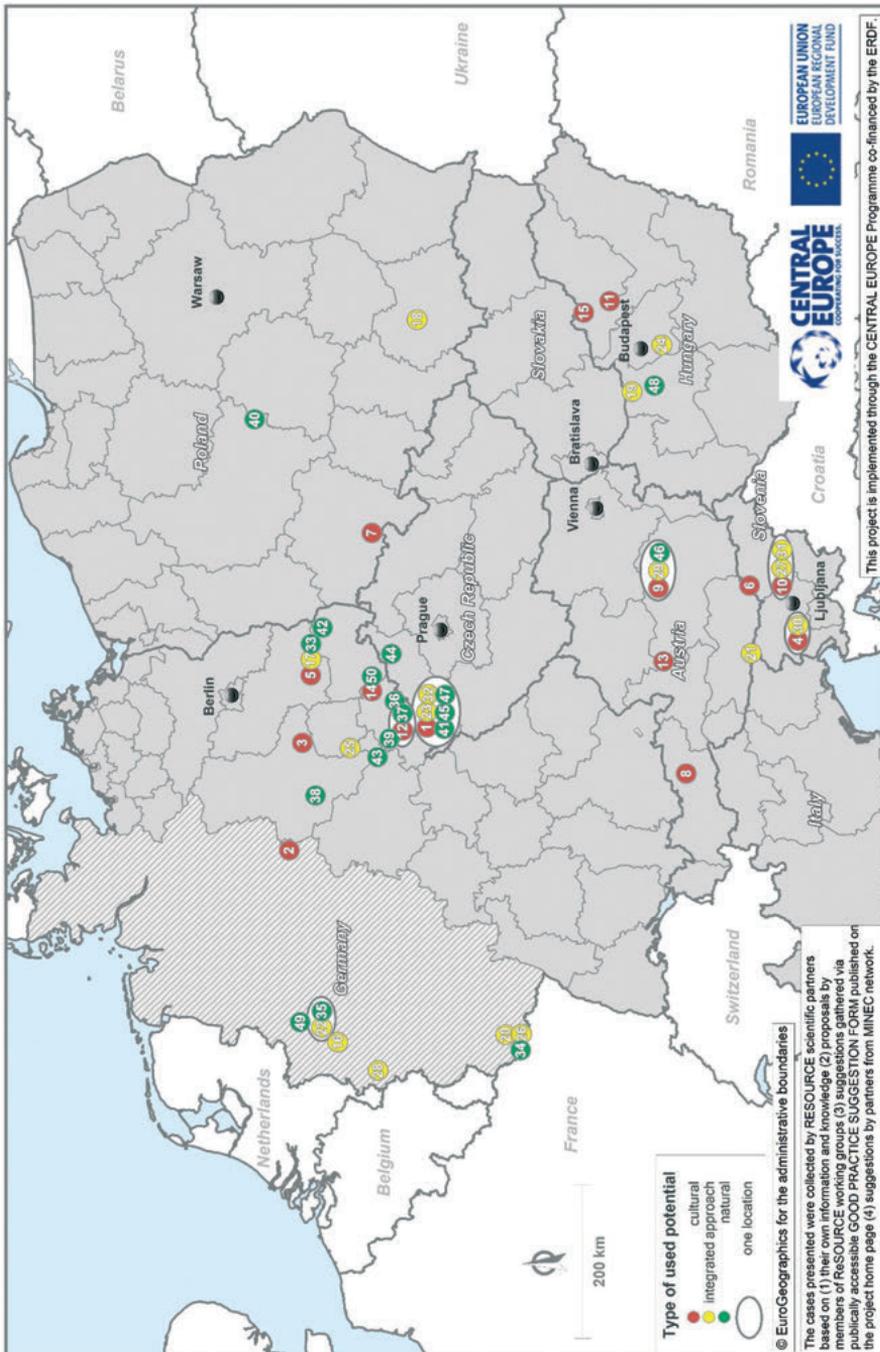


Fig. 3: Distribution of cases in Central Europe. (Content: Černič Mali, Marot, Schneider Klančičar 2010; Graphics by David Osebik, Karl Franzens University Graz)

b) Cultural potentials

Altogether 15 cases of good practice projects exploit cultural potentials. The questionnaire identified three groups of cultural potentials in post-mining regions: mining-related events, cultural utilization of mining infrastructure, and tourist routes of mining attractions. Respondents also proposed mining tradition and cultural landscape. Germany is represented by five cases, Austria and Slovenia by three each, Hungary by two, and the Czech Republic and Poland by one each. Seven have been completed, 5 are on-going, 2 have not been completed, and for one no data are available.

Museums, either in the form of show mines or exhibitions, are the most common use of technical heritage. However, many mining areas have moved on to more creative utilisation, for example providing venues for conferences, concerts and other special events and for religious purposes, sport facilities, e.g. swimming pools, educational institutions, and even eco-housing. In some cases rehabilitation has brought simple architectural and constructional solutions but nevertheless practical uses, such as storage space and facilities. The common denominators of all projects are tourism, cultural activities, and education. The list of projects using cultural potentials is enriched by success stories that enjoy international heritage protection, such as the Rammelsberg UNESCO World heritage site in Germany or the Old Colliery in Polish Wałbrzych.

c) Integrative approaches

Integrative approaches present various ways for tackling the complex problems that arise after mine closure. Germany again leads the way with six cases, followed by Slovenia with three, Austria, Czech Republic and Hungary with two each, and Poland with one. Integrative approaches cover the whole range from biomass and land recultivation to health and wellness, business, networking etc. Various master plans have also been counted as integrative approaches.

Integrative approaches are multidimensional, mostly being reflected in regional preparatory and decision-making processes. For example, new forms of intermunicipal and regional co-operation are established, initiators transpose European and national development guidelines into regional policy, new modules are added to development concepts, marketing of the region is improved and the regional identity promoted.

While more sophisticated integrated approaches are influenced by legislation or policy programmes, they also prompt them. No country adopts the same policy solutions as the others, but there are some similarities. For example, some countries adopt special acts to manage mine closure, e.g. for the Slovenian Zasavje mining region, which provide for all the necessary measures and guarantee financing. In other countries legislation on degraded urban areas also deals with mining sites.

The empirical data show that post-mining potentials are almost always exploited for economic purposes (new business activities, employment etc.). New economic activities were reported in nearly one half of cases, mostly in the fields of tourism and recreation, the catering trade, SMEs, education, construction and the like. The number of jobs created was not negligible, but usually far smaller than the number of jobs lost. Economic activities based on post-mining potentials, such as traditional crafts, hotels and catering, sports complexes, tourism, and culture attractions are nearly always in the hands of small and medium-sized businesses. These activities as such cannot generate employment on a large scale or compensate for the jobs lost with the end of mining. However, the real economic effect can be judged only if the jobs created indirectly are also taken into account.

In only a few cases was a substantial number of new jobs created. Such is the case with the Austrian project EURONOVA, which attracted 30 enterprises and created approximately 300 new jobs. In many cases jobs were created indirectly as new jobs established to support project activities. The German Zeche Zollverein created 1,000 jobs; the programme of measures for the period 2001-2006 in Zasavje contributed directly and indirectly to over 1,000 jobs; the Wieliczka Salt Mine – comprised of Wieliczka Salt Mine and Wieliczka Salt Mine "Tourist Route" – helped keep 440 jobs in the mine and created further 200 for the needs of tourism (Černič Mali et al. 2010a).²

Organizational aspects of projects

The institutional analysis starts with identification of the project initiators. In nearly half of cases the initiative came from the public sector, in slightly fewer than half from the private sector. Both sectors together were involved as project initiators in only seven cases. For projects involving natural and cultural potentials there is no clear division between public and private initiators. Seven projects using natural potentials were initiated by public institutions and six by private actors. Projects with cultural potentials show similar figures. Only one or two took the form of public-private partnerships. The complexity of actor networks for implementation meant that most projects taking an integrative approach were initiated by the public sector (9); in four the risk was shared by the two sectors, and in three cases data were not submitted. The analysis confirmed that the initiatives for commercially attractive projects are more likely to emerge from the private sector, while the initiative for projects that are more in the public interest (e.g. heritage protection) derive from the public sector.

Once the project idea has been developed, realisation depends essentially on funding. Information on financial aspects of projects proved difficult to obtain, at least when accuracy was required or business secrets involved. Approximately a quarter of respondents provided

2 Data for this question derives exclusively from respondent answers and were not further verified.

no data. Where data were provided more than half the project budgets exceeded € 1 million. Such projects require substantial investment in reclamation, built structures, infrastructure, etc., exemplified by the Bad Schlemma spa, show mines, museums and thematic trails, the Austrian "Salzbergbahn" rack-railway in Hallstatt, the event facility Schwazer Silberbergwerk and Eisenerz in Austria, the Centre of Traditional Handcrafts Bernard in the Czech Republic, and the Peca underground tourist route in Slovenia. The lowest-budget projects (under € 100,000) were tourist trails, for example the Ethnological Path connecting former miners' housing in Trbovlje, Slovenia or the Ježek education trail in the Czech Republic. Smaller budgets of between € 100,000 and € 300,000 are typical of pre-investment studies like geothermal energy project in Zwickau (Germany).

The majority of projects received public funding. Most came from central government (38%), followed by the EU (19%), and regional government (14%). Local funding contributed 4%. Private investment accounted for slightly less than a quarter of financing. While only minor private sources were involved in some projects (e.g. Open-air Geological Museum, Hungary, with 5% private and 95% public investment), for others approximately half (45% for the rack-railway in Hallstatt, Upper Austria or 60% for the Eisenerz event facility) came from private sources.

In addition to financial aspects, delivery was also looked at. Potential actors listed were *local government, regional government, national institution, private company, non-governmental organization etc.* Potential roles included project coordinator, technical support, public relations, financial management, scientific support. In the majority of projects the public sector was involved in implementation, accounting for nearly 60%. Most frequently, municipalities, cities, districts, and federal government departments assumed responsibility for coordination, technical or professional support, finance, concept definition, supervision and implementation. They played a very important role in 48% of cases. In 26% of cases the most important actor was from the private sector. The most frequent role assumed by the private sector is that of initiator, followed by financial assistance, coordination and implementation. Their influence was strong in 70% of cases.

The implementation of projects also depends strongly on the legal framework and supportive mechanisms. The most important documents cited at the global and EU levels were the UNESCO World Heritage Convention, EU regional policy with programmes such as LEADER, INTERREG-III-A and EU – PHARE, EU Framework programmes, and ERDF support. On the national level, the most important documents were national sectoral legislation such as mining law (e.g. Germany, Slovenia, Hungary), energy supply law (Germany), or the Law on the gradual closing of Trbovlje-Hrastnik mine and developmental restructuring of the region (Slovenia), the Environmental Fund (Hungary) or more specific government resolutions (e.g. Czech Resolution of the Government).

Supportive documents at the regional level were important, for example, in the Czech Republic (General Plan of Reclamation after Coal Mining in the Sokolov District), in Hungary (Decision of the Commission of Nógrád County before the political turn in 1989) and in

Germany (Biomass Action Plan »Bioenergie. 2020. NRW«). In the case of Czech projects, an important regional document was the special 5-year Remediation and Reclamation Plan approved by the Ministry of Environment. On the local level, settlement plans, development plans, master plans, as well as individual strategy concepts, and urban studies, appear to have contributed most to project implementation.

Public participation was also examined. According to the 26 answers received, local residents were actively engaged in 22 projects. Project facilitators used various public participation techniques, the workshop being the most common (8 cases). Other techniques were public events, such as public hearings and round tables. Also common was cooperation with local government, and, more importantly, the engagement of local residents in implementing the project idea. Local residents either become involved as a result of the project or helped with technical work, etc. Respondents were also asked about local acceptance of the project idea. Of 30 replies, 24 signalled local approval of the project. In three cases public reaction was initially negative (fear of new, advanced solutions, too strict protection, international competition...), but after acquaintance with the project and intensive PR, acceptance prevailed. The remaining three projects were not recognised by the locals as adding value to local development.

Research initiatives in the field of post-mining potentials

The centres of knowledge were also included in the database to obtain insight into the knowledge they acquired in the process of redeveloping post-mining regions. The database covers 23 centres. Approximately one third (30%) are in Germany, just over a fifth in Hungary and one fifth in the Czech Republic. More than half the projects primarily involve research into natural potentials, in four cases cultural potentials are the focus and in 10 cases centres have multiple expertise and were therefore classified as "integrative approaches centres". Our interest has been recent advances in knowledge; some of the centres under study, however, had been established many years ago. They are usually in universities, such as the Faculty of Earth Science, Geotechnical Engineering and Mining at the Bergakademie Freiberg in Germany (estab. 1765) or the Institute of Mine-Surveying, Mine Damage and Geophysics in Mining in Aachen (Germany; from 1899), and the Association of Miners and Metallworkers for Preserving the Traditions from Salgótarján (Hungary; estab. 1895). However, more than half the centres were established in the 1990s or later.

Slightly fewer than half the centres are independent, while the other half form part of larger organisations or institutions such as universities, mining and other companies, chambers of commerce or regional development centres. Mining companies were involved in founding centres in nearly a third of cases. Most are publicly financed, in almost all cases by central government. Centres offer knowledge support in various research fields. General expertise

includes education and research, policy making, mining site rehabilitation, elaboration, supervision and execution of mining legislation and policy, engineering works, environmental protection, renewable resources, and regional development. Specific knowledge coverage can be divided into policy-making expertise (revitalisation of post-industrial and post-mining areas, studies on post-mining area adaptation and land use development), social science research (socio-economic development, preservation of cultural heritage), and technical knowledge relating to natural resources (mine surveying, cartography, geology, soil, waste disposal in mining technologies, biomass utilisation, petrology, geotechnical and geophysics). The centres under examination provided basic information for nearly 50 projects/initiatives in which they have been involved over the past 5 – 10 years in post-mining regions.

Evaluation results

Forty-eight of fifty projects were evaluated; two were still in the pre-investment phase at the relevant time. Evaluation was based on the methodological concept explained above. On average, projects were mostly judged to have met good practice criteria. Altogether only three projects did not receive a score high enough to be considered good practice; nine satisfied 2 or 3 criteria and were judged to have only partly achieved good practice; 26 met 4 or 5 (mostly achieving good practice) and 10 projects fully achieved good practice. All criteria were satisfied by only two projects, one in the Natura 2000 field, and the other with comprehensive programme to tackle post-mining consequence in a former mining region. The Natura 2000 project launched in 2008 to foster tourism in the Zasavje region aimed to develop the regional tourist trademark and supporting graphical layout, create products and promote activities. The programme for the period 2001-2006 invested € 1 million in preparing land development, developing infrastructure and human resources. A business zone, business incubator, technological centre, regional scholarship scheme etc. were established. Other exemplary projects focused on the touristic use of mines and the mining heritage, on biomass production, geothermal energy, and renewable energies. The overview of evaluation criteria in Fig. 4 shows that most projects met the requirements of feasibility (39 of 48), sustainability (39 of 48), and legitimacy (37 of 48). Transferability was achieved by 32 projects. Projects were least successful in achieving efficiency (19 of 48) and innovativeness (17 of 32).

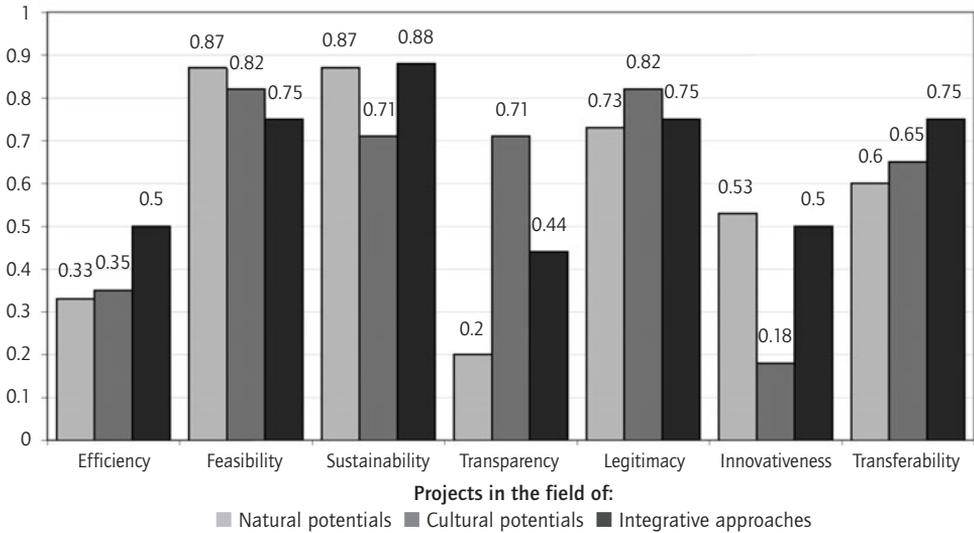


Fig. 4: Differences in satisfying good practice criteria by natural-potential, cultural-potential and integrative projects

Although no category of use can claim to have been the most successful, projects involving natural potentials scored best overall (4.4). The scores do not necessarily reflect the state of projects because fewer data were often available for low scoring projects, making evaluation more difficult. The projects that mostly achieved good practice are four aqua parks, one biomass project, two golf courses, one geological study area, and two landscape recreational parks. Among the most successful in the field of natural potentials are projects involving biomass and geothermal energy.

Cultural potential projects scored 4.1 overall. They scored particularly well on feasibility, legitimacy, sustainability and transferability. These projects were far better in transparency than other projects but mostly not innovative. Touristic projects such as Adventure Erzberg, Salzkammergut in Austria, Anthony's shaft and Peca underground in Slovenia scored best. Good practice was also achieved by UNESCO sites such as Erzgebirge and Rammelsberg, the Oxygen Adrenaline Park in Hungary, underground mines, Erzrod, and two educational trails.

On average, integrative approaches had a score of 4.4 and the majority were judged to "mostly achieve" good practice. None was given the lowest score; in comparison to other projects, integrated approaches scored best only for sustainability and efficiency. Touristic, economic, educational, cultural, and social projects did well on feasibility, legitimacy and transferability. But only half the projects were prepared transparently, and six of sixteen projects could claim to be innovative.

Discussion

The good practice analysis has shown that there is no universal recipe for tackling the problems of post-mining regions. In the discussion different factors influencing the success of a single good practice project and the differences in how participating countries present certain types of project are considered. Differences in delivering innovative solutions depend on a number of factors. First, the size of the area and the commercial attractiveness of the land are decisive for launching post-mining projects. Sites suitable for larger events and tourism seem to be more attractive for private capital, while uses requiring high investment in reclamation and construction, often aiming at heritage preservation, and bringing only long-term economic returns depend strongly on public resources. Secondly, legislation dealing with regional development and post-mining regions has a major influence on the success of the individual project. In some countries like Slovenia, the state has decided to adopt specific laws for each individual mining region in closure. Legislation that provides a region with finance and measures throughout the transformation process also requires the region to adopt the mine closure programme and later monitor transformation.

The significant impact of legislation is apparent in natural potentials projects. The German government was supporting projects for renewable resources, technical innovation, and energy efficiency as long ago as 2000, and the country can now present tangible, technologically advanced results in energy supply from post-mining regions. In the field of energy provision, such support is vital to introduce new solutions with an investment return period of 10 or more years. The little use made of renewable resources in Poland, Hungary, Slovenia, and the Czech Republic might be due to low ecological awareness and a lower level of technological progress. The mines in these countries are usually smaller, so that such investment is seldom economically efficient.

Unlike the generally insufficient use of natural potentials, the cultural heritage has been well preserved and managed in all participating countries; most projects have been completed and touristic and museum activities designed to preserve the mining heritage were present even before mining activity ceased, e.g. the Wielicka Salt Mine in Poland. The development of cultural potentials depends on several factors, such as the broader image of the region, public support, the type of mining and its attractiveness, the ability to compete with other tourist regions in the country, and above all the uniqueness of the regional identity and the story told. It makes a difference whether tourism is already established as an important economic activity in the region due to other attractive sites and products, or if tourism depends solely on the mining identity and heritage, as is the case in post-mining regions. Recent tourism projects have difficulty attracting visitors to areas traditionally branded as "dirty, brown mining regions", which have never been considered vacation destinations. It should be noted that the mining heritage does not attract mass tourism, so that it is unrealistic to expect the use of austere cultural potentials to generate added value equal to that produced by major economic activities (see

also Horváth & Czüllög in part IV of this volume). The analysis also shows that a more intensive use of cultural potentials can be hampered by low public support, lack of adequate legal support, lack of finance or consistent heritage conservation, especially in the case of housing or derelict buildings. However, it can thrive if capable and educated curators prepare exhibitions and come up with innovative ideas on mining heritage preservation. The best results have so far been achieved in complex and innovative rehabilitation projects funded by the EU and offering visions more elaborate than museum activities.

Above all, the success of post-mining potentials projects depends significantly on the level of support from policy and the legal framework. As a rule, medium-sized mining towns have only modest resources for creative planning, financing and implementation. Thus, a network of co-operating actors from different levels of governance responding to the analysis of the principal actors in the project implementation, their role and influence, seems to be an advantage for project preparation and realisation. Implementation should be supported by institutional framework conditions on all levels (local concepts and plans, regional strategies and reclamation plans, national legislation, EU policy). Moreover, projects can be delivered only if sufficient funding is granted. As a rule individual projects have been funded simultaneously from various sources, such as local, regional, national, and EU funding.

Conclusion

Good practice analysis shows that a great deal of experience has been gathered in Central European post-mining regions and that projects have produced multiple results. In the case of natural potentials, the main outcomes were landscape reclamation and rehabilitation, improved living-environment quality, new green and recreational areas, increased use of renewables and energy efficiency, and advanced solutions in the field of energy provision. Projects exploiting cultural potentials not only preserve the mining heritage but also turn artificial landscapes into tourist attractions, reuse facilities as living monuments or even for new housing, improve the identity of mining regions and support the local economy. Refurbished mining buildings also help foster urban identity. The results of integrative approaches are mostly reflected in preparation and decision-making processes. For example, new forms of intermunicipal and regional co-operation are established, initiators transpose European and national development guidelines into regional policy.

There were differences to be learned about the use of natural and cultural potentials. In the case of cultural potentials local and regional identity was stressed, as was the use of cultural potentials and heritage, and the importance of planning. For natural potentials the most important gain has been the conversion of degraded areas into recreational and touristic areas. Altogether, the most common benefit identified by respondents was that the potentials of post-mining regions can be successfully exploited in various ways, and can prove the most

important factor in local development. The second lesson was recognition of the importance of preliminary and comprehensive strategic planning and of securing financial support. Some respondents were surprised to see how mines could be integrated into new types of entertainment or tourist attractions after being a source of pollution and degradation for the area. They also acknowledged that a strong will and persuasive actors working together constructively could fulfil dreams (Černič Mali et al. 2010a, 2010b, 2010c, 2010d).

Furthermore, the projects enhanced the view of post-mining areas as a potential, and that the mining heritage can in some cases also be the most important condition for local development (e.g. Wieliczka Salt Mine). Respondents stated that some mining companies became interested in post-mining area utilisation (for tourism, recreation, real estate development) even after rehabilitation and accordingly ended their obligatory involvement. Respondents also learned from the projects that the rehabilitation and utilisation of post-mining areas are demanding tasks that require cooperation among many scientific disciplines and the involvement of local communities, and depend strongly on an adequate legal framework. Experience has also shown that well-planned and implemented rehabilitation projects can benefit the whole post-mining/mining region and provide for sustainable development.

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**Part IV:
Specific Aspects in
the Development of
Post-Mining Regions**

Introduction¹

Because investigations in the first parts of this volume have shown that the coordination and management of local and regional potentials play a decisive role in post-mining development, this topic is highlighted and further explored in a number of contributions in part IV. The following chapters focus on the deeper understanding of development problems and options and on the perspectives for post-mining regions. The studies address the questions posed in the first part. There we shaped a research perspective for the development of post-mining regions at the beginning of the 21st century. The policy-making capacity of post-mining regions and, in particular, of small towns is examined together with the role of local actors as a whole and young people. Another focus is the management of tourism destinations. The potentials of adventure tourism are analyzed and another study on tourism presents the geoheritage and ecotourism as an alternative tourism concept in post-mining areas.

The Czech research team (Antonín Vaishar, Zdeňka Lipovská, and Milada Šťastná from Brno) focus on the role of small towns in the future development of post-mining regions. Can they continue to fulfil their original functions as regional centres? If so, under which conditions? To answer these questions, the chapter looks at the historical and current state of post-mining small towns in ReSource regions. The embedding of small towns in regional development is discussed, their influence on settlement structures, and the transformation of their functions, physical structure, and social milieu over the mining period. The chapter also looks at the individual potential for future development in industry, central services, tourism, special services, and the local economy. Nevertheless, the human factor is stressed as the decisive factor for the future success or failure in small town development.

The German contributors Jörn Harfst, Peter Wirth, and Gerd Lintz (Dresden) deal with capacity building in post-mining regions. Starting with the proposition that small and medium sized mining towns have limited capacities to valorize post-mining potentials, the authors analyse governance processes in two German mining regions, Mansfeld-Südharz and Zwickau-Lugau-Oelsnitz. Adopting Martin Jänicke's policy and planning-related approach, research focuses on actors, strategies, and structural framework conditions in post-mining regions. Different forms of self-organisation in relation to the use of post-mining potentials are characterised. The study includes organisational and financial aspects of capacity building as well as learning processes in formal and informal networks.

1 The introduction is based on short abstracts from all contributors of part IV.

The contribution by the Polish author Sylwia Dołzbłasz (Wrocław) deals with the role of local actors in regeneration processes in former mining regions. Given the general importance of finding alternative, long-term developmental paths, she examines local actor involvement in the development of Wałbrzych, a former Polish hard coal mining town. Analysis of actor constellations and of the interplay between actors shows the importance of new local networks emerging after the end of mining. Special focus was on features resulting from the mining heritage. The use of natural and cultural post-mining potentials could become a significant development factor for the town both in tourism and in reindustrialisation.

The Slovenian contribution by Barbara Černič Mali and Naja Marot (Ljubljana) examines the participation of youth in the development of post-mining regions. So far, young people have largely been neglected as a potentially valuable resource; what is more, unfavourable job market conditions and the poor quality of life oblige them to leave the region. The study looks closely at the needs of young people and how they relate to regional development, including a critical review of the economy, current projects, and future prospects for such regions. The participation of youth in both strategy and decision-making is shown to be conducive to long-term solutions that could maintain stable demographic and economic conditions in regions even in the post-industrial period.

The following two chapters describe concrete perspectives for the development of post-mining regions under different framework conditions using various regional potentials. The Austrian authors Judith Pizzera and David Osebik (Graz) pick extreme and endurance sport as their central theme. A variety of reasons make tourism an attractive and therefore favored source of income: it is still a growing, future-oriented sector, accepted by the local population since it has an overall positive image and offers synergy effects for other sectors of the economy. Nevertheless it is often overlooked that tourism is a challenging business with a number of prerequisites. In this context, post-mining regions form a nearly perfect setting for studying tourism development from the ground up under very limited and adverse conditions. In most cases, such regions have to handle severe starting problems with tourism: an overall bad image, outmigration and the consequently ageing population, and a society without service orientation. In this sense, the case study of endurance and extreme sports tourism development in the Styrian Iron Route region shows an innovative and promising approach to overcoming prevalent problems. Such an approach is ultimately able to create something new, propitious and compatible with the mining legacy.

The Hungarian team with Gergely Horváth and Gábor Csüllög (Budapest) concentrate on ecotourism and the geoheritage in former mining regions. Taking into consideration that the mining heritage is part of both geoheritage and the cultural heritage, there is a special segment of tourism that can very probably contribute considerably to the development of these regions. Although there are many facets to ecotourism, it is agreed that most ecotourists are well-educated and take an interest in natural and cultural values, including the mining heritage. Developing eco-tourism can therefore prove a major factor in strategic concepts for such

post-mining regions. The authors take the example of the Salgótarján region in Hungary with its distinctive mining heritage to discuss the prospects for ecotourism, particularly in the light of the area's recent incorporation into the Novohrad-Nógrád Geopark.

It is of course impossible to paint the full picture of change in mining regions and the role of post-mining potentials in this volume. However, since the authors have mainly based their research on empirical investigations in regions involved in the ReSource project (see part II), the reader may well gain considerable insight into the situation in the post-mining regions of Central Europe.

Small Towns in Post-Mining Regions

Introduction

Before excavation started, regions had a basically rural structure of settlement where the centres were small or possibly medium-sized towns as. The main reason is that deposits of raw materials often occurred in mountain areas where bigger towns were not built for natural reasons (e.g. the Steirische Eisenstraße micro-region in Austria). Coal mining areas were usually not suitable for building big cities because coal deposits often occur in swampy areas (e.g. the Sokolov region in the Czech Republic).

Mining greatly changed the original structure of settlement. A cluttered structure emerged of collieries, miner and worker housing estates ("colonies"), industrial buildings, transport, construction, and other technical infrastructure, mine dumps and heaps. The concentration of activities developed into agglomerations or conurbations with the character of large cities or groups of cities (Black Country, the Ruhr area, Upper Silesia, Donbass, and many others) with vast deposits. The function of small towns practically ceased in this clutter. However, their physical structure was sometimes surprisingly preserved as new development often concentrated in the areas between existing settlements. On the other hand, some small towns had to give way to mining or the activities accompanying it.

The structure and the social situation of the population and its background markedly changed. The original inhabitants, who worked mainly in agriculture, forestry, and related services, or possibly in traditional industries, were replaced by employees of mines, processing industries, and the related infrastructure. They had an entirely different way of life, occupational experience, income and expenditure structures; the demographic structure also differed from that of the original population. Mining itself changed the primal rural landscape, remoulding its relief. However, transport of the extracted material, as well as the energy, chemical, steel, and other related industries also had a not inconsiderable impact.

This chapter focuses on the role of small towns in the future development of post-mining regions. Are they able to fulfil their original functions as regional centres? If so, under what conditions? We identify and discuss the various potentials for future development in industry, central services, tourism, special services, and the local economy. This may be considered a key issue in the revitalization of former mining regions.

A description of the theoretical background and methodology is followed by an overview of the towns under study. We look at the course of changes in relation to mining activities, reflected in the development of the demographic and social situation of each town. On this basis, changes in the functions of former mining towns are discussed and their role in post-mining developments. The human factor is seen as the main component in deciding the future role of small towns.

Theoretical Foundations of the Significance of Small Towns for their Rural Hinterland

Small towns play a specific role in Central Europe, especially in peripheral micro-regions that lack cities and medium-sized towns. For this reason, it is not by chance that research into small towns in Western Europe concentrates on peripheral areas, for example, Alpine regions (Perlik & Bätzing 1999, Borsdorf & Paal 2000, Zsilincsar 2003, Convertino 2006). Small towns are also a popular subject of study in the South of France and inland Spain (Laborie 1997, Rodríguez González 1997). The relation between small towns and development of the countryside has been described in general by Courtney and Errington (2003). There are individual studies on small towns as well as on small towns in their regional context, or on aspects of the development of small towns; complex studies, are rare.

Studies of small towns in post-socialist countries focus on the consequences of transformation from a centrally planned to a market economy. German geographical research (e.g. Niedermeyer 2000, Burdack and Knappe 2007, or Steinführer & Kabisch 2005) addressing transformation problems after the reunification of Germany seems to be the most advanced from the sociological point of view. Slavík (2002) concentrates on small towns from a complex perspective in Slovakia, Sokołowski (1999) in Poland. A more systematic study of small towns has been undertaken by Zuzanska-Żyśko (2004, 2005) for the Silesian region and by Kwiatek-Sołtys 2004 for Lesser Poland. Polish geographers have recently turned their attention to small towns as centres for rural areas (e.g. Heffner, Marszał 2005, Rydz 2006). Monographs or papers on small towns have also appeared in other post-socialist states (Rebernik 2005, Cigale et al. 2006). Their goal is to develop strategies for individual small towns on the basis of field research.

Another aspect is the change in central functions caused by the development of private transport and growing population mobility in the sense of Christaller. Retail and entertainment centres and many jobs have shifted from the centre of town to motorway interchanges, and many more mobile residents do not use the services in "their" town but commute to medium-sized towns or cities with better amenities.

The specific ambience of small towns is characterized, for example, by the simple fact that a car is not required to move around. People moving around town on foot or by bike observe an environment, establish and maintain social contacts quite differently than they do when driving a car. Small towns give inhabitants and visitors a sense of greater security. This has to do with the quality of life in small towns (Aehnelt et al. 2006).

Small towns are also the key to understanding and finding ways for rural areas to prosper, as they provide their micro-regions with the primary level of urban services. These are not only services in the narrower sense of the term but also job opportunities and social contacts. The prosperity of marginal regions may depend greatly on the prosperity of their centres. A decreasing number of job opportunities in small towns primarily affects the rural population in the hinterland. Government administration is now facing reform, and some small towns may play a considerable role in this process. Burdack (2007) states that small towns in sub-urbanized regions and with an important central function have prospects for future development, unlike small towns in peripheral and underdeveloped regions.

Small towns occupy a special position in mining and post-mining areas (Fernández 2010). One problem is that, in a number of cases, parts of towns have had to give way to mining or be relocated (e.g. Nilsson 2010). The functions of small towns have also changed with their physical structure. Some turned into residential settlements for miners and industrial workers and their families. Others acquired a new industrial or mining function (job centres), losing their central functions in relation to the hinterland, which ceased to be primarily rural. Others again became (micro)regional centres with growing populations.

The functions of small towns are the main subject of this chapter. As we define it (Vaishar 2006b, Vaishar & Greer-Wootten 2006), the function of a town depends on its position in the settlement structure (central function), its specialization (localization of productive and non-productive branches), and accommodation provision (residential function). Some functions are dominant and seen as the rule. Towns are usually poly-functional but on the small town level, we can also take account of mono-functionality. The particular function depends mostly on geographical position, natural conditions including raw material sources, and historical development. Functions can change where conditions modify. The depletion of raw materials could be one such factor that initiates change.

The specific development potentials in towns may be their mining and industrial heritage (Del Pozo & Gonzáles 2008) or the development of tourism in general. A good example of how to utilize the mining heritage and develop tourism in post-mining regions is the IBA Fürst-Pückler-Land region in Lusatia, Germany. This region is pursuing the decisive and highly innovative transformation of a mining region into one focused on tourism, recreation, and the promotion of its mining heritage. In any case, small towns where mining has ceased and other elements of settlement are at an end need restructuring (Dale 2002).

Thus some small towns change their function more than once: a centre serving an agricultural hinterland can become a settlement influenced by mining, heavy industry and technical infrastructure, to be later transformed into a centre for services and tourism (e.g. Egner 2002, Fulton & Shigley 2001). Towns whose central function has been so strongly changed by the effects of mining that they cannot remain centres serving a hinterland are ripe for specialization.

Scientists sometimes work with the theory of "path dependency" (Gwosdz 2003, Domański 2003), which seeks the causes of a current state of affairs in historical developments. Historical developments are blamed for activities and structures persisting in some towns that are not in keeping with the current innovative entrepreneurial environment. This aspect can be relatively important in post-mining regions, and it can explain why neighbouring towns have developed differently despite similar natural and economic conditions. A major role is played not only by the historical context but also by the human factor and local initiatives (Lang 2008).

The transformation of small and medium-sized towns after the cessation of mining in a region is part of an overall transformation of society from Fordian mass production to more flexible post-Fordian systems. In much of Central Europe, this is moreover a transformation from a centrally planned to a liberal market economy. All this is taking place against the background of globalization. What is more, in the development of the settlement system we have to take account of current urban development processes like suburbanization, counter-urbanization, and reurbanization. They interact with the specific effects of mining cessation, which not only changes the regional economy but also involves transformation of the social system and the landscape.

Methodological Approach to Investigating Small Towns

The definition of a small town is problematic. For Central European conditions, we propose a population limit of 20,000 with possible exceptions depending on the concrete situation. Medium-sized towns are defined as having a population of between 20,000 and 100,000.

From a methodological point of view, we consider the geography of small towns to be the geography of small areas as components of regional geography. One research problem is the scarcity of a general statistical base, so-called "hard data". For this reason field research has to be conducted and sociological methods applied to a higher level. In the light of the results in conjunction with population figures, small towns could be credibly defined.

Methodologically the research on the phenomenon of small towns in post-mining regions has been based on the set of small towns of the Sokolov-východ region. Analyses were supplemented by findings on towns in other case study regions. The research team also drew on experience in the study of towns in other mining regions, e.g. in the Ostrava region (Vaishar 2006a), in Lusatia, Saxony, central Germany in Leipzig/Halle region, in Upper Silesia, Poland (e.g. Zuzáňska-Žyško 2005), and in the so-called Black triangle near the Czech-Polish-German border (Ladysz 2006).

A combination of "hard" and "soft" data was used. The statistical data are taken from official sources such as national statistical offices or other central institutions. Analysis was complemented by field research, interviews with stakeholders (mostly local and regional institutions). A workshop featuring lectures by local experts was held and an excursion organised in each case study region. This enabled us to gain relatively detailed information about related small towns for comparison purposes. The knowledge was partly contained in reports about individual case study areas.

Certain criteria are very important for assessing small towns. Ideally, the function of small towns should be to provide an optimal living environment for residents, an attractive environment for visitors, an effective entrepreneurial context for economic activities, and also good conditions for self-realisation. But in addressing the role of small towns in future development, we also have to analyse their functions within settlement systems.

Overview of Small Towns and their Present Role in Post-Mining Regions in the ReSource Project

The **Sokolov-východ** micro-region in Northern Bohemia represents a typical structure of originally small towns. Its eccentrically located centre exceeds the population limit, but by origin it is a small town that has developed due to mining, industry, and its district function. The proximity of Karlovy Vary, the regional centre, has to be taken into account. It is obvious that in 1930 the structure of these five small towns (Březová, Chodov, Loket, Nové Sedlo, Sokolov; see Tab. 1) was much more homogenous, with a somewhat more distinct role for Sokolov. Intensive mining has totally changed this structure. The towns of Sokolov and Chodov, where housing development was concentrated, grew strongly, while the other towns lost a high proportion of their population to industrial development.

The main and largest centres of the **Mansfeld – Südharz** micro-region are the former district towns Sangerhausen (which could be considered a medium-sized town and regional centre), Lutherstadt Eisleben, and Hettstedt. Mansfeld and three other smaller towns fall within this group as well.

The **Zwickau – Lugau – Oelsnitz** micro-region has a clear centre, Zwickau, although this counts as a medium-sized town. Nevertheless, four other towns (Hartenstein, Lichtenstein, Lugau and Oelsnitz/Erzgebirge) can be described as small in terms of population structure.

The centre of the **Steirische Eisenstraße** micro-region is Leoben, the second largest town in Styria. Because there are few medium-sized towns in Austria, Leoben with its almost 25 thousand inhabitants may be classified as medium-sized. Thus, the micro-region has two small towns (Eisenerz, Trofaiach) and a number of townships (Marktgemeinde).

Tab. 1: Small and medium-sized towns investigated in the ReSource project (source: national statistics)

Town	Region*	Area [km²]	Altitude [m]	Population in 2010
Březová	Sokolov-východ	60	487	2,746
Chodov	Sokolov-východ	14	418	14,134
Loket	Sokolov-východ	27	427	3,192
Nové Sedlo	Sokolov-východ	17	427	2,714
Sokolov	Sokolov-východ	23	401	24,402
Allstedt	Mansfeld – Südharz	150	140	8,452
Arnstein	Mansfeld – Südharz	122	226	7,409
Gerbstedt	Mansfeld – Südharz	102	155	7,929
Lutherstadt Eisleben	Mansfeld – Südharz	144	114	25,489
Mansfeld	Mansfeld – Südharz	144	255	9,770
Sangerhausen	Mansfeld – Südharz	208	154	29,679
Hartenstein	Zwickau – Lugau – Oelsnitz	37	360	4,889
Lichtenstein	Zwickau – Lugau – Oelsnitz	16	336	12,706
Lugau	Zwickau – Lugau – Oelsnitz	6	400	7,071
Oelsnitz/Erzgebirge	Zwickau – Lugau – Oelsnitz	26	330	11,897
Zwickau	Zwickau – Lugau – Oelsnitz	103	267	93,750
Eisenerz	Steirische Eisenstraße	125	736	4,948
Leoben	Steirische Eisenstraße	108	541	24,600
Trofaiach	Steirische Eisenstraße	5	658	7,951
Hrastnik	Zasavje	59	418	5,865
Litija	Zasavje	316	278	6,420
Zagorje ob Savi	Zasavje	147	224	6,893
Salgótarján	Salgótarján	103	250	37,166
Wałbrzych	Lower Silesia	85	475	120,197

* see also the map in the introduction of part II

As far as the administrative structure of Slovenian municipalities is concerned, there is typically a high degree of settlement integration. Individual municipalities usually include relatively large proportions of rural population. For this reason, we calculate the populations of municipality centres in the **Zasavje** (Central Sava Valley) micro-region separately. Of five towns we excluded Šmartno pri Litiji with a population of only 1,500. The closest regional centre is Celje.

The centre of the **Salgótarján** micro-region, capital of Nógrád county, is evidently a medium-sized town. Of the other settlements, Somosköújfalu with 2,200 inhabitants is to be noted, although in the shadow of the regional metropolis it obviously does not have any importance as a centre; for this reason it will not be considered a small town.

Similarly, **Wałbrzych**, the second largest city in Lower Silesia, will not be considered a small town, as it is the biggest town in our set.

The small towns in mining micro-regions are mostly under the influence of more important (regional) centres situated either directly in the mining area or in its vicinity. This is why it is hardly possible to evaluate the role of small towns separately from the superordinate settlement structure.

Mining Activities and the Course of Change

The majority of small towns in mining regions evolved as centres with a rural hinterland prior to the advent of mining and intensive industrialization. They were centres of trade and services, which sometimes had important administrative functions in the medieval administrative hierarchy, or possibly military or ecclesiastical facilities. In ore deposit areas, they might originally have been small mining towns, although their character was usually semi-rural with a significant share of agricultural production.

Commercialization and the intensification of mining meant a market development for these towns by the standards of the period. New inhabitants came as mining experts, miners and workers. Some towns were transformed by spreading housing development within the municipal bounds, while new settlements were built near mines and works (miners' and workers' housing estates) concentrated later on in prefabricated housing estates outside the original settlements.

Soon, manufacturing developed on the basis of mining. Coal was used to produce energy for use in high-energy industries such as iron and steel. Ore was sometimes also processed locally. But coal is an important raw material for the chemical industry, too; this is why chemical works are not exceptional in mining regions. Other industries supplied the needs of the fast-growing agglomerations or provided employment for women, easing the inequality between the sexes typical of mining regions. Sometimes traditional production developed into industrial manufacturing even prior to mining (for example the glass and textile industries). Coal mining gave a particular boost to the glass industry, because coal fueled the glass furnaces. Big glassworks were established. In the mining town Hrastnik in the Zasavje region of Slovenia (Steklarna Hrastnik was founded as early as in 1860, and is still the third biggest employer in the Zasavje region), in Salgótarján in Hungary, and in Nové Sedlo town (where the AVIRUNION a.s. glass company still exists), and Oloví in the Sokolov region (the glass factory that came into existence in 1893 employed 1,200 people prior to World War II).

Both raw materials and products had to be transported. As a rule, mining regions were among the first to link up to the fast developing railway network (e.g. the Zagorje micro-region in Slovenia was connected to the Austrian Southern Railway in 1857; Salgótarján to the Budapest – Salgótarján railway track in 1867; the Sokolov region to the Buštěhrad Rail in

1870). Vast networks of sidings were built directly in mining regions. Other technical infrastructure serving mines, industrial enterprises, and settlements was also built.

The landscape and natural environment went through major changes depending on the methods of extraction (opencast or underground), its scale, the nature of the original landscape, and the type of follow-up production. On the one hand the natural landscape was directly disturbed by mining, i.e. opencast mines, dumps and piles, with later subsidence; on the other hand the original landscape was altered by significant changes in its utilisation, producing a new, technogenic landscape with an extremely high proportion of technical structures, sites, and networks. Heavy industry, intensive transport and other activities brought extreme air and water pollution, soil contamination, the displacement of autochthonous biota and the invasion of ruderal communities. The image of environmentally impacted areas accompanies post-mining regions even after the termination of the main mining and industrial activities.

The social environment of the original small towns was probably disturbed even more. The people coming to work in mines and industrial enterprises were predominantly young at the beginning of their economic activity. They were mostly men due to the hard work. They came exclusively to make a living and had no relation to the region and its small towns. Their work and professional experience differed significantly from that of the original inhabitants; however, their incomes and consumption patterns, including housing also differed. They settled down in the region and their migration also decreased in comparison to the indigenous population. They came from various regions and were sometimes of diverse ethnic origin. This trend was very strong, for example, in the Zasavje micro-region in Slovenia, where many people arrived from South Yugoslavian lands because of job opportunities. An estimated 15% to 20% of the local population has other than Slovenian nationality. The newcomers gradually created a specific culture and a mining tradition; because of their numbers, they often dominated in the community. In the Sokolov region, the situation was intensified after World War II, when the original German inhabitants were compulsorily transferred, so the population was completely replaced (with some exceptions) in this area.

The impact of mining and related activities on small towns differed. Some towns in the mining regions were only indirectly affected by these activities, as intense construction took place outside the town limits. Other towns had to give way to mining and were partly demolished or shifted to other sites. In the 1950s much of old Habartov in the Sokolov region of the Czech Republic was pulled down. New Habartov was later constructed in the form of high-rise prefabricated housing. Bukovany experienced a similar fate, where Kytlice, Lipnice, Vítkov, Jehličná or Smolnice were demolished in the late 1980s. One of the largest fuel works in the former Czechoslovakia was built in the 1960s in Vřesová. Tisová made way for a power plant and a coal grading plant (Sojková et al. 2010).

In other cases, the overall appearance and the character of small towns changed. Chodov in the Sokolov region grew significantly with immigration from the 1960s to satisfy the demand for labour in a new energy generation complex burning brown coal in Vřesová and in

the Chodov engineering works. While the population in late 1946 was 2,603, by 1970 it had reached 11,452 and in 1988 15,603. To provide housing for the workforces of these enterprises and residents of Smolnice municipality, which had had to make way for mining in 1965, the original housing was replaced by prefabricated blocks (Sarkányová et al. 2003). Between 1960 and 1977 Salgotarján in Hungary suffered a similar fate.

Especially in larger mining and post-mining regions there are small and medium-sized towns that developed from the original villages or miners' colonies even while mining was still being carried on. In the period of centrally planned economy, so-called socialist towns were planned and built from scratch in accordance with prevailing architectural and urbanist principles modified by concrete conditions. A typical example is Havířov in the CR, where construction began in 1947 to house the workforce of mines and ironworks in the Ostrava region. Today this town has a population of 82,022 (as of January 1, 2011 – source: Czech Statistical Office). Similarly, mining towns were founded by merging municipalities. The north Hungarian towns Kazincbarcika (pop. 29,256 in 2010) and Tatabánya (pop. 70,164 in 2010) are examples of such municipalities.

The Present Demographic and Social Situation of Small Towns in Post-Mining Regions

The termination of mining always means major job losses, which probably cannot be completely compensated despite the optimistic views of some authors (Munteanu 2010). For example, between 1989 and 2008 in the Sokolov region the number of employees of the single mining company fell from 11,884 to 4,300 (Fejlková 2009). In the Austrian VA Erzberg GmbH company in the Steirische Eisenstraße micro-region 7,188 people were employed during the mining boom in 1940, whereas in 2007 the figure had dropped to 140. Furthermore, skills in mining regions are one-sided and earnings usually higher than average. The level of earnings is explained not by qualifications but by the hard and dangerous nature of the work. Finding a new job usually requires reskilling and accepting lower pay, which is not very attractive.

The obvious consequences are higher unemployment, lower purchasing power, and lower living standards. In some post-mining regions tens of thousands of jobs were lost. Often, crime and social pathologies increased, furthered by the urban character of the regions, notably the lower level of social control. Another result is outmigration exacerbated by the general counter-urbanization in Europe and by the negative environmental image of former mining regions. For example, outmigration had a considerable impact on Eisenerz in the Austrian Steirische Eisenstraße micro-region, which lost almost 60% of its population through the down-scaling of mining between 1951 and 2008. Eisleben and Hettstedt in the Mansfeld-Südharz micro-region in Germany lost respectively one third and one fifth of their inhabitants between 1950 and 1989.

Small and medium-sized towns become deindustrialized as well as de-economized. The symptoms are vacant housing and abandoned industrial sites. There are numerous brownfield sites in former mining regions. However, this offers opportunities for a large-scale rebuilding and modernization of the region.

The outcomes of cutbacks in mining and industrial production are apparent in both urban and rural areas. The original settlement structure has often been transformed by mining. The localization of individual activities has more to do with the dislocation of mines, miners' settlements, factories and infrastructure than with the usual Christaller centrality rules.

Functional Change in Former Mining Towns and their Role in Post-Mining Development

The existing settlement structure has to be taken into account in discussing the future role of small towns. It is clear that the settlement pattern has substantially changed during the mining period partly due to mining as such (which had displaced agriculture and forestry, creating very specific land use structures), partly as a consequence of general development trends.

It seems that not all centres will maintain their central function in the future. The general trend is against micro-regionalization. Greater mobility allows residents to use services in more distant centres with better amenities rather than in "their own" nearby local centre. In post-mining regions, traditional intra-settlement relations have been interrupted and are only exceptionally reconstructed. In such cases, the potential of the other small towns (apart from regional centres) probably lies primarily in specialization in other services or job creation. On the other hand, greater mobility means that it is no problem for the inhabitants of the entire region, including residents of the main centre, to travel to small towns for special services.

In general, the future of small towns has to be based on diversified activities. The following functions also need to be considered:

- A complex central function connected with the spectrum of services for the hinterland including administrative activities (e.g. Sokolov, Zwickau, Salgótarján, Wałbrzych)
- An industrial function in traditional or promising new sectors offering jobs especially for people with industrial training and skills (e.g. Chodov)
- Services for tourism development based on post-mining potentials and/or other local and regional potentials (natural, architectural, cultural, religious, sport, etc.) associated with the appropriate infrastructure (e.g. Lutherstadt-Eisleben, Locket, Erzberg)
- special services in education (special schools), health care (including spa resorts), social services (in response to the population ageing), special events (e.g. congress tourism) and similarly (e.g. Leoben)

—A residential function including the local economy in the spheres of technical and social infrastructure comes into account for small towns unable to revitalize their centrality (e.g. Březová)

Local actors often seek to establish industrial zones to attract investors, also from abroad. This is understandable given the qualification structure of the local population. But there is some risk. The industries attracted are likely to include assembly plants for foreign-made products, which offer poorly paid jobs for less qualified people. This is not interesting enough for former miners. In extreme cases, such firms will also have to bring in workers for their assembly lines, and once production (which is not locally or regionally embedded) ceases, these workers only expand the ranks of the unemployed. It is clear that preliminary industries with some local tradition or local anchoring should be placed in such industrial zones.

As already mentioned, not all small towns can maintain their central and cultural functions from before mining began or intensified, or the specific culture that developed during the mining period or any blend of the two. Towns often capitalize on mining-related potentials in the form of mining museums. For example the so-called Adventure Museum of Mining (Abenteuer Erzberg) that welcomes some 100,000 visitors every year was founded in Erzberg. However, a problem remains. These are one-day visitors who can do little to help the local economy. The potential of small towns may lie mainly in their historical heritage (e.g. the publicity for Eisleben in Germany focuses primarily on Martin Luther, who was born there), in the location of important activities (e.g. the mining town Eisenerz in Austria with the nearby ski resort Präbichl is a Nordic sports centre), the human factor, and the geographical situation.

To attract tourists to post-mining regions for more than a day, it must offer a range of activities and the appropriate infrastructure, including cultural, sporting, architectural, wellness, natural and social attractions. The selection may differ from case to case, and to a reasonable extent resources can even be artificially created. The offer of activities has to be supported by the proper accommodation structure, catering and other services, including information marketing. Intensive advertising is needed to correct the poor image of post-mining regions.

The development of social services is a vision for the future. The importance of education, health care and services for individual population categories (including senior citizens) is already increasing. Small towns with complete basic urban services and their urban/rural social milieu are ideal locations. Social services, often subsidised, will bring jobs for better qualified people.

Non-central small towns may possibly concentrate on housing and related local services. This can offer potential because it is more efficient to settle people in small towns with adequate local markets than in villages that often have to rely on towns for almost all services.

The Human Factor as Precondition and Hindrance for Development

We have so far dealt with the role of spatial settlement structure for the development of small towns. This structure could be considered an "objective" factor. But actual development also depends to a large extent on "subjective" circumstances. The actors involved ultimately decide whether favourable conditions will be used for development, unfavourable conditions overcome or turned to advantage.

Experience has so far shown that the decisive prerequisite for any regional development is the human factor, human potential. There are a number of aspects to it: qualifications, i.e. formal education, working experience, and habits. In this context, motivation is a very important element in human potential. Then there are the personal qualities of the local population. They include their relation to the town and region. An ability to adapt to quickly changing conditions is obviously also an important factor.

In fact, the situation in post-mining regions is usually not very favourable in this respect. The skills structure of the workforce is one-sided and qualification levels are far from high. A general problem is the unfavourable educational structure; the proportion of university graduates tends to be below the national average (e.g. in 2001 Eisenerz had almost 3 times fewer graduates than the national average). Work experience and habits are not very compatible with the new requirements.

Motivation is very low and has declined with the cessation of mining as the prestige of the mining profession and mining regions has fallen. Many miners and industrial workers of mines and industrial enterprises are first or second generation immigrants, who have often lacked the time to put down roots in the town or region. There is little capability to adapt from the hard but well-paid work in mines and industry to self-employment in services with unlimited working hours and lower earnings. But the organizational habits of employees in big enterprises can play a significant role in the transformation process. For the time being they manifest themselves rather in social protest (Vasi 2004).

This is also why local and regional authorities should focus on the human factor. Florida et al. (2010) speak of the creative class that is the main development factor everywhere. The authorities should consider, for example, seeking to attract secondary schools or universities and their branch establishments. The University of Applied Sciences in Zwickau and the Academy of Mining in Leoben are examples. As far as mining-related education is concerned, it is worth considering adding economic and social disciplines to the programme.

Another factor of great importance is the development of social activities, which could markedly contribute to renewing and creating traditions, encouraging social relations among the local population to increase motivation for involvement in town and region. The formation of social networks after the termination of mining is an interesting field of study for sociologists (Strangleman 2001). This is obviously a long-term project with uncertain, difficult to

assess outcomes. For this reason local authorities prefer to focus on building an infrastructure. This is also important but one-sided orientation on the infrastructure leave modern towns more or less depopulated.

Conclusion

Small towns are a specific phenomenon in post-mining regions. Their original functions, physical structure and social milieu have been substantially transformed by mining. When mining comes to an end, the prospects for each town change.

The aim of the chapter has been to discuss the role of small towns in the future development of post-mining regions. In general, small towns will play an important role in the future settlement structure of such regions. This is particularly the case where cities or medium-sized towns are lacking. But in other regions, too, small towns will play a role as a meaningful element in the settlement structure and link between urban and rural areas. However, not all small towns will be equally important; their roles in the future development of post-mining regions will differ.

Only some small towns in post-mining regions will be able to revitalize their central functions in the course of re-organizing post-mining areas. The increasing mobility of the urban/industrial population in post-mining areas and the medieval density of central small towns reduce their efficiency in performing such functions. The future of the remaining small towns lies in industry, tourism, special services, or residential functions.

Successful exploitation of potentials for development in small towns depends primarily on the human factor (presence of creative classes), namely the development of individual activities and the ability to win funding from national and European sources. As a rule, the advantages of post-mining regions have not included the necessary quality of the human factor. Regional and local authorities should make every effort to enhance it.

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Governing Post-Mining Potentials: The Role of Regional Capacities

Introduction

Numerous examples from the international context have shown that resource exploitation is often the main source of value creation, employment and income for mining regions. Mining companies not only form the basis of regional economy but are also intensively associated with infrastructure development and social welfare (Freudenburg 1992). In times of rapid global economic change, such mono-structured regions have accordingly to face a wide range of challenges when mining ceases. The contributions in this volume have underlined that Central Europe is no exception, particularly since 1990 (Wirth & Lintz 2007). The end of mineral exploitation in this region has brought profound structural, economic, and social changes. In recent decades, new competitors on the world market and cutbacks in national subsidies have made production in traditional centres of the mining industry unprofitable (Müller et al. 2005). The damage is considerable: mining regions have frequently experienced the complete closure or substantial down-sizing of mining and related industries. This has led to de-industrialisation, high unemployment, and outmigration (see contributions in part II).

Creating a new development path for such regions is a complex and challenging task. The legacy of mining such as old buildings, facilities, and infrastructure, as well as compromised landscapes and environmental pollution, does not – at least at first glance – seem to be a good point of departure. However, the end of mining also provides an opportunity to realise more sustainable regional development by fundamentally altering the relationship between people and economy and also between people and the environment, especially in terms of environmental rehabilitation, the re-use of land and facilities, and more environmentally-friendly workplaces (see also Wirth, Černič Mali, Fischer in part I).

Today, post-mining development has to take place in a situation where academic and political debates on structural change in old industrial regions have lost their influence, despite the persistence of concomitant problems. Specific national and European funding for sectoral programmes has generally decreased.¹ In this context, mining regions are increasingly relying on their own devices. In such a situation, one way to deal with such far-reaching changes can be to review mining legacies in order to identify and utilise hitherto unrecogni-

zed potentials (Wirth & Lintz 2007). For this purpose, regions need to build new capacities, for example financial and organisational, to mitigate the negative outcomes of structural change. For this reason, regional capacities are becoming increasingly important for mastering structural adjustment by utilising potentials for regional development (Healey 1998, MacLeod 2001).

On the basis of the state of mining regions described in part II of this volume and the good practice examples in part III, we can identify good examples of how mining potentials can be used successfully to promote economic, ecological and social change. A conference on "Post-Mining Landscape" in Brandenburg/Germany, which recently demonstrated the broad spectrum of possibilities (IBA Fürst-Pückler-Land 2010), also discussed such results and examples. Nevertheless structural adjustment after mine closure remains a major challenge for all the regions affected. Restructuring processes in large European coal regions like Ostrava (Czech Republic), the North-East of England (UK), Limburg (Belgium) or the German example of the International Building Exhibition (IBA) Emscher Park (e.g. Eckart 2003, Kilper & Wood 1995) underline the need for significant financial and political backing by the state.

This chapter, in contrast, is concerned with mining regions where small and medium-sized towns predominate, with often only limited capacity to act, and which attract little political attention. Often these towns face a loss of spatial functions and infrastructure (compare the contribution of Vaishar, Šťastná and Lipovská in part IV). Earlier research has shown that, in general, the ability to deal with structural change depends strongly on the mobilisation of local and regional actors (e.g. Kunze 1997). Searching for factors contributing to successful structural change in old industrial regions characterised by small and medium-sized towns, Lintz & Wirth (2009a) have found evidence that cooperation between actors can decisively enhance regional capacities for action, and thus foster regional development. This chapter focuses on this factor and asks *how actors* in the regions under investigation *build capacities* for identifying and utilising their post-mining potentials. The empirical basis for research is provided by two former eastern German mining regions, namely Mansfeld-Südharz and Zwickau-Lugau-Oelsnitz.

The next section briefly describes post-mining potentials and their possible benefits as the basis for new development paths. The third deals with the importance of capacities in mining regions as a precondition for identifying and utilising potentials for regional development. Section four presents the case studies on the utilisation of post-mining potentials and established modes of capacity building. A fifth compares the two examples, highlighting differences and similarities. Finally, core findings are presented and discussed.

1 In the past, the European Union in combination with national governments has tackled specific structural problems in mining and old industrial regions through programmes like RECHAR and RESIDER, which supported the restructuring of coal and steel regions from 1989 to 1999.

Post-mining Potentials

The character and different use-values of post-mining potentials are discussed extensively in part I of this book. In this part the authors therefore provide only a short overview of the kind of potentials referred to. Generally, the legacies of mining and related industries are associated with environmental damages. Combined with the difficult economic and social consequences of structural change, all these factors culminate not only in structural weaknesses but also in a difficult “black” image for such regions. Nevertheless, there are relicts from the industrial past that have the potential to attract new investment and, perhaps more importantly, to become part of a new vision for the sustainable future development of such areas. In accordance with the general theme of this book, two groups of post-mining potentials can be identified (see also part I and III of this book): *Natural potentials* appear in the form of natural elements modified by mining. These potentials can be the transformed landscapes left behind after mining activities, such as slag-heaps and open-cast pits. Remediated landscapes can be used for recreational purposes, with new lakes and parks or forests. Other utilisations focus on energy production. Here large-scale land reserves can be used for renewable energy projects focusing on biomass production, while mine water is a potential source of geothermal energy production. The second group, *cultural potentials*, include technical heritage, infrastructure, and buildings for processing, as well as mining settlements. In addition, non-materialized potentials such as mining events, mining traditions, and mining identity also belong to this group. Museums – whether show mine or exhibition – are one of the most common uses of heritage, other examples include mines as concert venues, swimming pools, religious and conference venues, or for eco-housing.

Both groups of potentials can be found in nearly all former mining regions. Their utilisation depends partly on framework conditions such as national legislation, policy aims, the financial situation of local government, subsidies, and the availability of other funding opportunities (i.e. national energy policies) (see also Marot/Černič Mali in part III). Local demand conditions are also important, e.g. in the fields of retailing, services, agriculture, education, recreation, and research. Identifying and valuating such post-mining potentials is a complex challenge (Harfst et al. 2012). Regions have to possess or develop the necessary technical, financial, and institutional capacities to successfully realise these potentials.

Building Capacities for the Valorisation of Post-Mining Potentials

At the end of mining activities, the affected regions struggle to cope with structural problems due to the decline of the mining industry and the ensuing economic and fiscal weaknesses. In addition, once helpful old networks and actor structures have often become obsolete,

depriving these regions of some of their organisational capabilities. The ensuing outmigration of the skilled workforce and others weakens social relationships. In the case of small and medium-sized towns, the situation is even more acute: While their size makes them easier to manage and local key stakeholders easier to address, their small administrative apparatus with few highly qualified personnel can be seen as a distinct disadvantage (Lintz & Wirth 2009b, Diamond & Liddle 2005, Danielzyk et al. 2000, Müller et al. 2005). In this situation the capacities of former mining regions and towns to master the challenges of structural change and to develop a new development path are limited. The main question in this context is therefore how the capacities of regional actors, especially local and regional authorities, can be strengthened in a situation marked by deep and ongoing structural changes.

Questions of capacities and adaptation have been widely dealt within the literature on global environmental change and resource management. Ostrom (1990) links capacities to the task of "*building knowledge and incentives into institutions and organisations...in order to sustain societal development*". Drawing on this assumption Berkes et al. (Berkes et al. 2003) state that, in the case of a socio-institutional context, adaptive capacity depends on "*the attributes of individuals, organisations and institutions that might foster learning in the context of change and uncertainty, such as the willingness to learn from mistakes, engage in collaborative decision-making arrangements and encourage institutional diversity.*" Adaptive capacity is therefore characterised as the ability of social actors and institutions "*to deal with the unexpected*" (Folke et al. 2007). For some regions, mine closure is often not an "unexpected" event, especially where long-term phasing-out scenarios are applied, as in regions like Sokolov and Zasavje presented in this volume. Nevertheless, definitive closure is "unexpected", especially for many local actors, as production generally "flickers" along market prices and demand, always feeding the hope that production might restart under more favourable market conditions (Freudenburg 1992). Also for former Eastern European countries, the end to mining activities due to the political changes in 1990 and the sudden confrontation with the global market contained a large element of "surprise". This is true of regions such as Mansfeld-Südharz, Salgótarján and Wałbrzych presented in part II in this volume.

Moreover, a range of operational and strategic aspects that influence adaptive capacities can be identified, such as technical, financial, and institutional issues (Armitage 2005). With reference to what has been said above, the term "capacity" in the context of local and regional development can be broadly defined as the general ability to identify and solve development problems, with explicit reference to cooperation and learning among actors on different policy levels.

Following a policy and planning-related research approach, the analysis here is primarily based on the work of Jänicke (2002) on environmental policy. In his specific model, capacities depend first on actors with their strengths, competencies and constellations (Fig. 1). Secondly, the strategies actors choose are important. Drawing on the definitions, it is decisive whether actors are willing to collaborate and establish a learning process. Thirdly, structural framework

conditions play a role in capacity building. They encompass political and institutional aspects (e.g. the remit of municipalities in a multi-level politico-administrative system), economic and technological aspects (e.g. possibility of brown field remediation), and cognitive informational aspects (e.g. general knowledge about good practices in the use of old mining potentials).

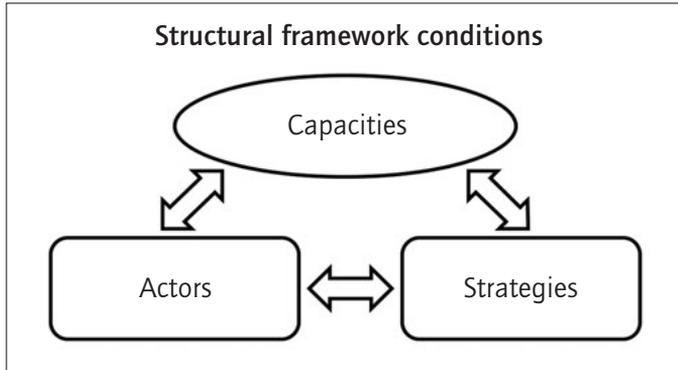


Fig. 1: Components of capacity building (adapted from Jänicke 2002)

According, for example, to Hooghe & Marks (2001), different forms of governance arrangements can be found in regional development contexts. The case studies in chapter II of this volume underline different approaches ranging from strong state involvement through specific legislation and funding (Zasavje, Sokolov) to cases with no clear, overriding responsibility for the development of post-mining regions on the regional scale ("no actor is in charge"), where self-organisation is the predominant form of governance (cf. e.g. Chhotray & Stoker 2010), as in Salgotárján. The need to find new perspectives that build on post-mining potentials can serve as a focal point for establishing collaborative decision-making networks, as it combines the regional past with future development options. This is particularly true for old industrialised areas, where the identification of residents with past industrial labour is usually high (Černič Mali et al. 2010, 9). "Traditional" actors within the region (i.e. property owners, miner's associations, administration, politics etc.) are thus potentially addressed, as well as "new" actors from other backgrounds (i.e. artists, universities, civil society groups etc.) not previously involved in regional development. Such collaboration can take various and complex forms, involving different actors, on different scales, with a varying degree of formalisation (e.g. Healey 1998, Feiock 2007). Such arrangements can build new organisations and institutions, but also can retain a more informal character as networks (Cooke & Morgan 1993, Ansell 2000). Such collaboration has the potential to foster collective learning by addressing typically shared development problems (e.g. regional tourism). These problems can be tackled by new decision-making arrangements that lead to institutional diversity (i.e. regional tourism marketing agencies), as well as by increasing the organisational and financial capacities of regional actors (i.e. joint financing or lobbying for projects).

Overall, one factor for successful progress in tackling structural change in small and medium-sized towns is capacity building through cooperation between actors to create mutual learning effects (Osebik & Harfst 2011). To gain a better understanding of the main issue, i.e. the importance of capacity building for identifying and utilising potentials in post-mining regions, three questions need to be answered: What role do post-mining potentials play in the regions? What forms of collaboration can be found? Does cooperation indeed help improve capacities and, if so, how do institutional settings (formal or informal) favour this?

Case-studies – Two Eastern German Post-Mining Regions

A qualitative comparative case study approach based on methodological propositions by K.K. Yin (Yin 2003) was taken in answering these questions. Two former mining regions in eastern Germany, Mansfeld-Südharz and Zwickau-Lugau-Oelsnitz were investigated. Both are characterised by predominantly small and medium-sized towns and have to cope with the consequences of mine closure and the accompanying structural changes to their economies. As both regions started new initiatives to tackle the impacts of mining and to value particular post-mining potentials, they were highly suitable subjects for case studies. The investigation combined document analysis (i.e. strategy papers, plans), statistical analysis, and expert interviews with local and regional stakeholders. These included local decision makers in the case-study regions, such as mayors, planners and politicians. The interviews focused on the general state of the utilisation of post-mining potentials, as well as the actors involved and overall control of the process. The authors also attended regional workshops and events, gathering further information through observation, in order to gain deeper insight into how regions build capacities through collaboration. A variety of regional stakeholders were present at these events, ranging from local politicians, administrative staff and planners to civil society groups such as former miners' associations, business leaders and other interested parties (see Harfst, Wirth & Lintz 2009; Osebik 2011). The two regions offer the same general framework conditions, namely the federal structures of the political system of Germany. Table 1 gives a short overview of basic facts on the two foci. A more detailed analysis of the two regions can be found in part II of this volume.

	Mansfeld-Südharz	Zwickau-Lugau-Oelsnitz (FLOEZ)
Administrative status	Administrative district	Association of 9 municipalities
Inhabitants (2007)	155,000	161,000
Population density (2007) (Germany: 230 per km ²)	109 p./km ²	597 p./km ²
Population development (1990-2007) (Germany: +3%)	-20%	-18%
Type of mining	Underground	Underground
Main material extracted	Copper shale	Hard coal
Cessation of mining activities (year)	1990	1978

Tab. 1: Regions under investigation, some facts (based on Harfst et al. 2012)

Mansfeld-Südharz – A former copper mining district

The administrative district "Landkreis Mansfeld-Südharz" is located in the state of Saxony-Anhalt/Germany and its largest towns are Sangerhausen (31,000 inhabitants) and Lutherstadt Eisleben (25,500). The region contained one of the largest deposits of copper shale in Central Europe. In the 1960s, at the peak of production, the regional mining industry employed around 40,000 people. The closure of the mines after German unification in 1990 has left the region struggling to this day. Because it is, in many ways, at the periphery of economic development and lacks the infrastructure necessary to boost regional economic development, Mansfeld-Südharz has been marked by constantly high unemployment and very problematic demographic development ever since mining ceased.

The region has been relatively successful in exploiting some of the region's post-mining potentials. The mining heritage is integrated into the district's tourism strategy by utilising many of its cultural potentials, such as the show mine in Wettelrode and the restored mining railway in Hettstedt. The cultural potential of the region's mining heritage is also documented in the LEADER project "Kupferspuren" (Copper Traces). The district's mining history is one of the three main pillars of regional tourism, alongside the heritage of the reformation leader Martin Luther and the regional viticultural and market gardening tradition. In recent years, regional actors have also furthered the utilisation of natural potentials with the remediation of slag heaps for mineral exploitation and the use of mine water for geothermal energy production.

The administrative district Mansfeld-Südharz has neither a comprehensive strategic concept for regional development nor an organisational setting to coordinate individual initiatives. This can be partly explained by the re-drawing of district borders and ensuing rivalries within the district itself. The only overall planning instrument for the district is the "Integrated Rural Development Concept" of 2006, drawn up in the context of the EU LEADER pro-

gramme, which has targeted the region since 2002. The local LEADER action group (LAG) has since 2004 coordinated 37 wide-ranging projects on local infrastructure, tourism, local value chains, etc. worth about € 6.5 million. In applying EU funding, the region benefits from strong, informal, project-based networking centred on thematic issues and existing, informal network structures. The LAG is an important nodal point for various project ideas and actors in the district, especially because of its ability to convert ideas into projects and to involve other actor groups, such as the miners' association. Even though the LEADER initiative excludes the region's urban core municipalities, it has been important for regional renewal. Another key actor is the private association "Bildungswerk der Unternehmerverbände" (Industry and Commerce Training Centre). Leading figures in the organisation have strong links both to the old, mining-related networks of the Mansfeld-Südharz region and the new administrative units of the Mansfeld-Südharz district, as well to the most important towns.

Despite the fragmented nature of cooperation, the informal structures in the district have indeed been able to generate a variety of integrated projects and funds to utilise post-mining potentials and to anchor them in tourism marketing for the region (for more details see Harfst & Wirth in part II of this volume). These developments have also led to the inclusion of the district administration in some plans (biomass production) and the establishment of new and follow-up projects in funding schemes currently not used by the region (e.g. participation in INTERREG project "MIN-NOVATION", LEADER transnational cooperation project). The projects enable the region to employ new staff specifically for this purpose. The region has been able to create valuable networks with universities (University of Applied Science Zwickau) and business addressing geothermal energy production in connection with a pilot plant for geothermal energy from mine waters in Wettelrode, the first such installation in the state of Saxony-Anhalt.

Zwickau-Lugau-Oelsnitz – A former hard coal mining region

The area of Zwickau-Lugau-Oelsnitz in the state of Saxony/Germany is the most extensive former hard-coal mining region in eastern Germany. Mining ended in 1978 and the region today has about 160,000 inhabitants. Nine municipalities in the region actively cooperate in regional development in exploring the use of post-mining potentials. Cooperation between municipalities was organised in 2005 under the name "Future for Lugau-Oelsnitz-Zwickau" (FLOEZ). Overall the area has relatively good potential for development: the regional centre, Zwickau (95,000 inhabitants), has a diversified economy today, because it is part of an automotive manufacturing cluster. It encompasses the research capacities of the "Westfälische Hochschule" (University of Applied Science Zwickau); the region is thus relatively well-equipped for successful economic development, some 30 years after the end of mining. Nevertheless, the FLOEZ area faces the same challenges as many other eastern German mining regions, including high unemployment (12.5% in June 2009 compared to 8.1% on federal average) and a problematic demographic structure (see also Harfst & Wirth in this volume).

Regardless of the difficult nature of the mining heritage (in this case especially unregulated and incomplete rehabilitation), the region has advanced various innovative ideas in the FLOEZ context on how to utilise the remains of the industrial past. The region has many colliery sites such as remediated heaps and dumps, and some projects have involved the re-use of such areas for new purposes, such as a motocross track in Lugau, as well as the creation of thematic hiking and biking trails through former mining land. Moreover, afforested heaps are used as green structuring elements for commercial areas or have been upgraded by touristic infrastructures (lookout tower on a heap in Oelsnitz). Plans have also been advanced for the re-use of old infrastructure, such as a business park on the site of the old "Martin-Hoop" pit in Zwickau. The region has various museums and exhibitions relating to mining, and houses the "Saxon Museum of Hard Coal Mining" in Oelsnitz. Municipalities and the miners' association have also tried to strengthen the touristic potential of the region through its mining heritage, developing a joint regional marketing campaign for fairs and other touristic events under the label "*Auf den Spuren des Schwarzen Goldes*" (On the Trail of Black Gold). As far as natural potentials are concerned, the region has been able to benefit from experience in the wider region (geothermal energy project in Bad Schlema). The city of Zwickau was able to secure funding to drill for warm mine water to be used for energy production in 2012. Ideas have been put forward on the use of brownfield sites as woodland or cropland for thermal biomass-based energy production.

The Integrated Development Strategy for the Zwickau-Lugau-Oelsnitz Area in 2006 is the culmination point of long cooperation between local and regional actors since the mid-1990s. With the founding of the FLOEZ initiative in 2005, the region was able to develop and rely on a highly integrated cooperation structure, which created a dense regional network structure (Harfst, Bieberstein & Wirth 2009). Central to this process was the "*Wirtschaftsregion Chemnitz-Zwickau*" (*Economic Region, WIREG*), a regional development body in South-Western Saxony. The WIREG included the cities of Chemnitz and Zwickau, as well as the two administrative districts of Zwickau and Erzgebirge. The body was created in 1995 as a joint intermunicipal initiative and was the main actor for regional economic development in the area. All communities participating in FLOEZ were also part of the WIREG. The WIREG acted as an important regional facilitator and moderator for events and development planning in the former mining region and actively initiated the establishment of FLOEZ in 2005. WIREG was dissolved in 2010 due to changes in district boundaries and resulting administrative conflicts. This regional agency has had no successor.

While the WIREG operated on the regional level, FLOEZ includes all important local stakeholders in the administrative sphere (administrative districts, municipalities, regional planning association). Cooperation includes private experts from a mining background to provide expertise and ideas for exploiting the mining heritage. Both regional cooperation initiatives displayed mature forms of organisation and were well established with regular meetings, creating a close group of key actors from planning and administration. Within this

context, certain local mayors also provide active leadership, leading to participation by the region in various EU-funded projects (i.e. INTERREG projects REVI, READY). Some of these actors have also established a wide network of contacts on mining questions, involving universities (Polytechnic University Freiberg), foundations, external experts, the Saxon mining authorities, and other mining regions across central Europe (via the MINEC network). The joint lobbying undertaken by the FLOEZ cooperation managed to obtain extra funding from the state government in 2011.²

Comparison and Discussion of Case Studies

Coming back to the three initial questions about the role of post-mining potentials, the forms of collaboration and the improvement of capacities can be addressed. In both cases empirical findings show that *post-mining potentials* do indeed play an important role in regional development, albeit in various forms and degrees of integration in overall development concepts. Post-mining potentials are included in regional development, notably cultural potentials in joint regional tourism marketing strategies.

In the peripheral, economically weak district of Mansfeld-Südharz, these potentials play a rather prominent role, especially because they are elements in rural development concepts. The main focus here is on cultural potentials with a selective use of typical elements of the mining scenery (show mine, mining railway etc.). Whilst post-mining matters are put forward through the local LEADER network, their integration into more general regional development strategies on district level remains rather weak. The FLOEZ initiative takes a broader approach to the mining heritage, including both cultural (i.e. mining museum) as well as natural aspects, encompassing the search for renewable energy sources and the re-use of mining land. The regional development concept in FLOEZ must be seen as an ambitious but sectoral concept with limited impacts on the municipalities involved. But, as a part of the regional development strategy of the much stronger Economic Region of Chemnitz-Zwickau, it has official status and is supported by the Saxon government. Despite the inclusion of post-mining potentials in formalised integrative plans, utilisation remains somewhat of a side issue in overall development planning for the economically stronger FLOEZ region.

The two cases discussed here also differ considerably in *forms of cooperation*. The Mansfeld-Südharz region is characterised by low formal steering capacity, due to weak forms of cooperation between municipalities and the district administration. Nevertheless, some successful, relatively informal and project-based arrangements for cooperation between actors from different

2 Joint press release from Sächsisches Staatsministeriums für Wirtschaft, Arbeit und Verkehr, der Landkreise Zwickau und Erzgebirge, der Städte und Gemeinden im Steinkohlerevier Zwickau-Lugau-Oelsnitz: „Das Erbe der sächsischen Steinkohle – Region und Freistaat packen an“, 17.06.2011

fields can be found in the region. They mainly depend on EU-funded structures and largely comprise actors from networks dating back to the times of active mining (engineers and manager of the former mining company and of related companies). In contrast, the FLOEZ region has developed formal, strongly institutionalised cooperative structures, embedded in a hierarchical system with several policy levels. The powers of those involved derive mainly from their political mandate. The network was established with the specific aim of developing post-mining potentials for regional development, but funding is difficult owing to limited resources and differences between the region and municipalities in political approaches to the use of potentials.

Although every region has its own approach to cooperation – due to different substantive and actor-related regional situations – both examples demonstrate the importance of building capacities through cooperation between regional actors. Both cases underline the importance of post-mining potentials in establishing an arena for collaboration between regional actors on regional development. In Mansfeld-Südharz, competence is developed through implementation of the European LEADER programme. This would not be considered extraordinary were it the result of action by established actors in local politics and administration. But under the weak organisational and conceptual framework conditions described above, the acquisition of competence has been based on a network of actors coordinated by a civil society organisation. In the FLOEZ case, cooperation played an important role in drawing attention to post-mining problems long after mining had ceased. The challenge was to achieve better appreciation of regional requirements in state authorities. The common initiative and integrated development concept provided the basis for a discussion of post-mining problems and potentials, as well as for first steps in implementation.

Overall, each region has adopted its own approach to cooperation, based in one case on rather informal network structures (Mansfeld-Südharz) while the other relies on a strongly formalized organisational form (FLOEZ). While both forms have yielded remarkable results, it is clear that each mode has distinct weaknesses: The Mansfeld-Südharz example is clearly dependent on the networking capacities of certain key actors, whose withdrawal from the network would be difficult to compensate. With concepts not being entrenched in official policy documents and actors not being integrated beyond the tight-knit LEADER network, the utilisation of post-mining potentials remains rather isolated from other initiatives in the district. In the case of FLOEZ, the integration of approaches to exploiting post-mining potentials into more formal structures has excluded certain groups from the process (i.e. civil society, business). Strategic aims are accordingly not carried by a broad base of actors and show signs of "lock-in" and a lack of fresh ideas.

Despite these shortcomings, both examples show that cooperation influences capacity building in the region in a variety of ways: first, a better perception of regional requirements by state authorities, second, purposeful access to state funding and, third, the opportunity for larger joint projects. As the case studies show, cooperation on the utilisation of post-mining potentials has significantly increased regional capacities to act, whether or without specific

strategic development concepts being in place. Valuable learning effects and gains in knowledge can be noted, mainly through the inclusion of other actors and the opportunity to employ extra staff continuously through project funding. This has led to the successful initiation of new projects and network partners (Mansfeld-Südharz) and access to new funding sources (FLOEZ).

Conclusion

Due to their economic mono-structure, mining regions are particularly vulnerable to rapid global economic change. In the case of Central European mining regions, political system change in 1990 also created an "unexpected" situation for many such places. Once regional mining is closed, new pathways towards more sustainable development need to be found. As the two case studies discussed here clearly show, the general capacity of mining regions "to deal with the unexpected" (Folke et al. 2007) is rather limited when mining ends. Particularly in regions with predominantly small and medium-sized towns, this poses huge challenges.

This investigation has shown that, in the two eastern German regions under study, post-mining potentials were identified and used to create and improve the basis for a new path of economic development. Landscapes were rehabilitated, infrastructure upgraded, and new opportunities for tourism established, albeit without guaranteeing automatic job creation. These considerable achievements are clearly based on cooperation between regional actors, which improved regional capacities to act. In keeping with Berkes et al. (2003), it can be said that the results highlight an increase in institutional diversity, collaborative decision-making and knowledge creation within the regions. Joint efforts established the required capacities for creating new project ideas, as well as for planning and financing projects.

Due to framework conditions, each region has adopted its own approach to cooperation with one case being based on rather informal network structures (Mansfeld-Südharz), and the other on strongly formalized organisational forms (FLOEZ). The investigation has revealed that various approaches can yield remarkable results. Nevertheless it has also become clear that each approach has distinct limits as far as the stability and intensity of cooperation is concerned.

All in all, results show that regional cooperation has led to successful capacity building in the two regions. For policy-makers at the national level, this suggests that cooperation tailored to individual framework conditions pays off and is worth supporting. Such cooperation holds the potential to trigger learning effects that increase the regions' capacity to mitigate the general impacts of global change. Research has also raised the question how the collaboration and capacities achieved through such thematic cooperation (i.e. on utilisation of post-mining potentials) can support and improve general regional development structures over and beyond the specific field. It also remains to be seen how sustainable such effects are in the regions and if such capacities can indeed create the needed resources "to sustain societal development" (Ostrom 1990).

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Local Development Actors in a Post-Mining Municipality

Introduction

After the cessation of mining and the closure of mines, most cities and regions affected have to deal with serious problems (Harfst et al. 2010). Because their previous development has depended on mining, its cessation is a huge challenge for local authorities. They must look for ways to prevent adverse effects in both the social (see Marot & Černič Mali in part IV in this volume) and economic spheres (Harfst et al. 2011), as well as in the field of environmental rehabilitation (Harfst & Wirth 2011; Kabisch 2004) and on the region's image (Pizzera & Osebik in part IV). Defining strategies for developing post-mining cities/regions (as well as their implementation) is a key issue in overcoming the burden of the past (see Harfst, Wirth & Lintz in part IV). In this context, the analysis of alternative, long-term developmental paths and the interplay of different actors involved in multi-level governance is very important (Zimmermann et al. 2007).

The focus is on local development in connection with the role of actors in Wałbrzych, a former coal mining city in south-western Poland. The study also looks at local development factors and suitable development perspectives, concentrating on tourism and re-industrialization as two important elements of regional development in this area.

Local Development – A Theoretical Basis

The local level is an indispensable element in the social-economic development of country, region and local community. Individual and broader public interests are accordingly met with local resources and development factors. This means that the process has to be programmed, monitored, implemented and modified by local government, the institutions on the appropriate level that collaborate with it, and representatives of the local community (Brduluk 2011).

Finding the optimum way to achieve economic development is one of the basic issues in the all economics at the national, regional, and local levels. Churski (2004) distinguishes between 'old regional development theories' (G. Myrdal's circular cumulative causation; Perroux's

concept of a growth pole; A.O. Hirschman's polarization theory), neoclassical growth models (R.M. Solow and T. Swan), as well as neoclassical regional development paradigms (i.a. G.H. Borts and J.L. Stein's neoclassical regional growth model; H.W. Richardson's exogenous development model). New concepts include convergence analysis (i.a. R. Barro and X. Sala-i-Martin; D. Quah), new growth theories (P. Romer's endogenous growth theory); R.E. Lucas's human capital; new economic geography (P. Krugman, A. Venables), or endogenous regional development policy (W. Molle and R. Cappellin; M.E. Porter). These last two concepts stress the growing importance of endogenous factors (including human and social capital, creativity, and innovativeness). The economic development of a region is accordingly mostly driven by the endogenous physical and social resources of the region.

Local development concepts, also referred to as "bottom-up development" (Raczyk 2003) have assumed that the basic factors in regional development such as infrastructure, human capital, economy structure, social structure etc are not very mobile. The chief premise of bottom-up (endogenous) development is the full and harmonious exploitation of regional resources and the skills of the local population. This purpose may be achieved mostly by eliminating barriers to internal growth (which inhibit the establishment of new enterprises and the development of existing businesses).

Endogenous and exogenous growth potentials

Endogenous and exogenous factors in local development are distinguished in terms of source. Exogenous factors may include the supra-local institutional system, legal conditions imposed by supra-local levels, foreign investment, and external funding. Endogenous factors include the quality of local authorities, local human and social capital, the local infrastructure, the local institutional system, local entrepreneurs, and institutions of the business environment (Ciok et al. 2006).

It is generally assumed that local development efforts have better prospects if locally initiated and steered (Blakely & Green Leigh 2010). If the area has no or only few potentials of its own, even significant external intervention will not to establish any. Gorzelak (2000) has empirically confirmed the tendency of endogenous factors to prevail over exogenous factors in regional and local development.

Local development, also being a social process, includes local community efforts to activate local pro-development attitudes, sometimes preceded by lengthy preparation of both resources for economic use and people to play their part in development. It is thus important to make the best use of internal strengths. While not underestimating the importance of exogenous factors, external development factors must be promoted by activating internal development forces (Brduluk 2011).

Studies on local development in Poland have identified a range of major endogenous factors which help meet the challenges of the global competitive economy through social in-

novations (Gorzela 2000). This first is local leaders capable of formulating long-time visions for development and implementing them with the collaboration of the local elite (able to give firm support to the pro-development strategy). Local institutions that stabilise the action of leaders and elite are also important (e.g. business environment institutions, associations). The involvement of the business community and local population in the projects initiated by local authorities plays a significant role. It is also crucial that actors be willing to cooperate across municipal boundaries, particularly with neighbouring communities to solve the problems beyond the possibilities of the individual municipality. These factors set the general conditions of local development. They will not play a role to the same extent in all cases and do not have the same effect on all local social-economic processes. However, each is significant for local development and if even one is lacking, the chances of achieving lasting success in local development will diminish (Gorzela 2000).

Tourism is often included among the significant endogenous factors in social and economic activation on the local level. It depends on the existence of tourist attractions which are elements of the natural environment or cultural heritage, and which may constitute a tourist destination. In the case of post-mining regions they may have to do with the mining past and heritage, such as post-industrial infrastructure, underground tourist trails, or mining culture events (see Horváth & Csüllög in part IV). In this context tourism could provide solutions for the utilization of post-mining areas innovative in both goals and methods for attaining them (Hjalager 2010). In general, tourism enables various initiatives to be flexibly implemented. Moreover, marketing demands tourist activities to be innovative and imaginative. Bottom-up initiatives play an important role in developing tourism, involving the creation of social capital and territorial identity.

Areas that for various reasons are deficient in endogenous factors require strategies based on external factors. One example is previously mono-industrial regions (e.g. dominated by the mining industry). When the dominant industry no longer produces, the local economy as a rule plunges into crisis with the loss of its main development potential. In such cases external factors seem appropriate for achieving new development. For territorial units of this type with their limited possibilities, external investment bringing transfer of knowledge, organizational innovation and the like can give significant impetus to growth (Grosse 2007).

Role of and cooperation between actors in local development

Collaboration among actors has become a key element in improving a region's economic, environmental and social situation. Thus, partnerships can prove a crucial innovation in regional governance. However, its effectiveness must be ensured when not only economic success but also sustainable development is the goal (Davidson & Lockwood 2008; Koschatzky & Kroll 2007).

Without cooperation between local actors (e.g., local government, mining companies, neighbouring municipalities), coherent local development is difficult to manage. Examining

selected actors will therefore help define the extent to which a consistent, comprehensive development strategy can be created and implemented. Isolated activities, i.e. initiated only by urban authorities, seem to be less effective and successful. It is therefore better to link up the activities of local government authorities and other types of institution in function of their character and possibilities (for instance shaping the institutional-legal framework, social mobilization, financial capabilities, human resources), e.g. NGOs as a source of innovative ideas on the use of the mining heritage, and local government authorities as a real power in implementation.

The non-governmental sector needs to be reinforced and policy making included in the local development process. Cooperation between government and the non-governmental sector (in tourism development policy) as well as the private sector (along with business environment institutions) is essential.

Case study – Regional Development in Wałbrzych

Focus and methods

Research focused on two important elements of development in the Wałbrzych region: tourism and re-industrialization. The main aim in tourism was to identify significant actors in local tourism development and their roles in specific fields and to examine the action taken in these fields (e.g., joint vision of local tourism development, scale and role of the mining heritage). In industrial development the main aim was to identify important actors in re-industrialization and to analyse their roles and action in specific fields. Special focus was on local authorities and regional developmental agencies. Other aims were to examine the vision of industrial development, the scale and role of the mining heritage in reindustrialization, and the nature of collaboration between actors. Overall, the study also investigates the generation of knowledge on urban governance and interaction between actors in local development strategy creation with the focus on the mining heritage.

Research was based on regional (urban) governance and social capital theory. The literature consulted included Ache 2000; Antoine & Dalon 2006; Coleman 1988; Lin 2003; Putnam 1995; and Swyngedouw 2005.

The main methods used were document analysis, the general interview guide approach, and SWOT analysis. The documents examined covered development strategies, marketing strategy, restructuring programmes, analysis of current and planned tourism development strategies, investment projects, and intermunicipal partnership agreements. For the interviews the general interview guide approach was chosen (Gall et al. 2003; McNamara 2006; Turner 2010). Interviews were conducted with the most important local actors in urban development. Representatives of local authorities, regional development agencies, culture, tourist organizations,

NGOs and young people were taken into account (in total 10 interviews were conducted). Statistical data, material and documents from the Wałbrzych Municipal Office were consulted, as well as material and documents from The Marshal Office of Lower Silesia Voivodship.

Region of Wałbrzych

The urban municipality of Wałbrzych is in the Lower Silesia Voivodship in south-western Poland close to the Czech border. The city lies in the central Sudety Mountains, whose natural and man-made attractions make them one of the main tourist regions in Poland. Although the oldest historical records on Wałbrzych date from the 12th century, the development of the city, including population growth, has been directly linked to development of the mining industry. Development was most dynamic in the second half of the 19th century and the first half of the 20th century during intensive, mining-based industrialisation. After the decision to close down the mines in 1990, the extraction of coal in the Wałbrzych region came to an end in 1993-2000. The collapse of the mining industry and the low potential offered by other sectors caused high unemployment. Long-term exclusion of a significant segment of the job market intensified the social crisis. Since 1990 the population has been declining (negative birth rate, outmigration especially young people), and other social problems have manifested themselves. Of the negative consequences in other spheres the most significant are the unfavourable image of the region, pollution of the environment, mining damages, and the abandoned post-mining infrastructure. Few projects to convert the post-mining infrastructure to new uses have so far been implemented. This is because the structure of post-mining sites is extremely fragmented and incoherent, both with respect to ownership, function, and location, which is a major problem for the development of these areas.

Economic problems have been tackled by reindustrialization measures. A special economic zone was set up in 1997 and industrial enterprises settled there together with suppliers. Although the economic, social and environmental situations are still difficult, significant improvements in all these spheres have been achieved in recent years (see further details and in-depth analysis in part II of this volume).

Local Development of Wałbrzych

Theory suggests that strategic planning in Wałbrzych should be based on cooperation among all actors in the interests of local development. This is particularly the case for the use of post-mining property, as mining companies were privatized and post-mining areas thus passed into the hands of a number of organisations in both the private and public sector. In post-mining areas, the municipality now had to deal with diversified ownership as well as spatial fragmentation. In fact, there was no joint plan for developing the mining heritage in the town as regards land use, infrastructure, former miners, or mining companies, neither in 1990 when it

was decided to close the mines, nor in 1993 when first strategic documents were adopted, nor in 2000 when the mining industry was finally wound up. There were only specific, isolated initiatives without a comprehensive approach to the problem.

After liquidation of the mining industry, on which the development of Wałbrzych had long been based, exogenous development was strongly emphasized in the first phase of transformation. With its limited possibilities, Wałbrzych had no choice but to seek external investment, with the transfer of experience and institutions seeming to be the only option. In this context, the only possibility to achieve economic progress, to decrease unemployment and protect the city against general decline was for the municipality to make a concerted effort to attract external investors (*Wałbrzych Province Development Plan*, 1993; *Strategy of Development of the Wałbrzych Province* 1993). Special attention was given to important investors from the industrial sector, for instance from the automotive, electrical machinery, and chemical industries.

The approach taken to local development in Wałbrzych gradually shifted in focus from exogenous factors to endogenous development. In the initial phase, the stress had been on external investment in the industrial sector. More attention was later given to identifying, exploiting and developing endogenous factors, including those contributing to tourism (*Wałbrzych Province Development Plan*, 1993; *Strategy of Development of the Wałbrzych Province*, 1993; *Strategy of Sustainable Development of the City of Wałbrzych until 2013*, 2005; Interview with Mayor of Wałbrzych, 2010).

Tourism has been identified as a significant factor in social and economic activation for local development (*Strategy of Sustainable Development of the City of Wałbrzych until 2013*, 2005; Interview with Mayor of Wałbrzych, 2010; Old Colliery project, 2009). It draws on natural and cultural potentials, which in the case of Wałbrzych include the mining heritage (e.g. mining museum, cultural centre on post-mining properties, bike and motor sporting competitions on mine dumps). Although the Wałbrzych economy has taken leave of its mining past, this heritage allows the city to anchor its identity in its industrial history (*Wałbrzych Promotion Strategy*, 2008).

Actor Constellation

Political actors play the most important role in local development (Fig. 1). Local government, i.e. the city council, the mayor of Wałbrzych, the city management board, the municipal office (as well as all dependent authorities) is a key actor in both tourism and industrial development. Nevertheless, local government plays a definitely stronger role in re-industrialization (*Strategy of Sustainable Development of the City of Wałbrzych until 2013*, 2005; Interviews, 2010). One reason is that attracting and establishing investors is within the exclusive ambit of local authorities. Measures such as establishing local development plans, decreasing property tax, and setting up economic activity zones are the responsibility of local authorities.

In tourism the main task of public bodies to create good conditions (e.g. marketing strategies, revitalization programmes, infrastructure). "Responsible" for their practical functioning are private institutions like firms or NGOs in such fields as the hospitality industry, tourist event management, image creation, and the popularization of social attitudes.

In re-industrialization the Wałbrzych Special Economic Zone (SEZ) "Invest Park" has recently been playing the most important role. It was set up to attract foreign investors and develop new branches of industry. It offers favourable conditions for business. It was a "natural" development to pursue given the industrial past of Wałbrzych). Wałbrzych SEZ has been successful and is considered one of the best in Poland (*Specjalne Strefy Ekonomiczne po 2020*, 2011).

The Mine Restructuring Company, responsible for post-mining property management, could be a significant actor in local development. Unfortunately, this has not been the case in Wałbrzych. The company had neither a vision for global, planned, and coherent management, nor a concept for transforming functions. The privatisation process was therefore selective and chaotic. In consequence, the ownership, functional, and locational structure of post-mining areas is extremely fragmented and incoherent. This is a major problem for development.

By contrast, the Lower Silesian Regional Development Agency in Wałbrzych (including the Lower Silesian Technology Park) plays a positive role, especially with regard to endogenous economic development. The same can be said of the Wałbrzych Regional Fund Foundation, which assists former miners and SMEs.

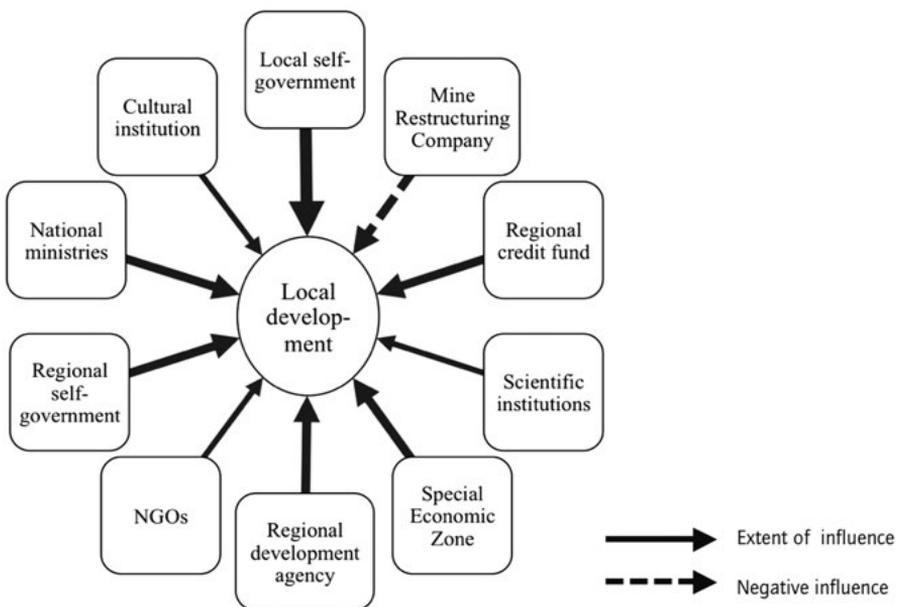


Fig. 1: Extent of influence on local development in Wałbrzych municipality (Source: own elaboration).

As regards NGOs, the situation is not satisfactory. Associations and foundations have taken little action, and where they have done so, it has been mainly in the field of social aid. Active organizations from other fields include the Regional Centre for Non-government Initiatives Support, the Mouflons Association, the Mercury Association, the "Wałbrzych 2000" Foundation, the "Dom Bretanii" Association, and the Miners' Association. Scientific institutions do not play an important role.

Given the size of the city and the scale of problems, the number of potential actors engaged in the issues of local development is relatively low. In particular, there are few private sector actors representing local communities: NGOs, private businesses, business environment institutions.

Interplay of Actors

From a strategic point of view, intermunicipal cooperation is crucial: if urban development strategy is not well embedding in the local and regional environment, it has little chance of success. Wałbrzych cooperates with surrounding municipalities (Fig. 2). The main area of joint activity is tourism development. The city participates, for example, in promotion and marketing projects, and in such ventures as tourist trails. Under the Lower Silesia Development Strategy, tourism in the Wałbrzych region is developed in cooperation between the Wałbrzych municipality, surrounding municipalities, private tourism actors, and the Lower Silesia Voivodship (*Wałbrzych Promotion Strategy*, 2008).

The other important field of cooperation is technical infrastructure planning. Particularly difficult is vertical cooperation in road infrastructure planning between municipalities at the district, regional, and national levels. There are major deficiencies, notable the lack of a ring road for Wałbrzych, and inadequate access to the A4 motorway. Economic cooperation between local actors is sufficiently well developed. The Wałbrzych municipality, the Wałbrzych SEZ, the Lower Silesian Regional Development Agency, and the Wałbrzych Region Fund Foundation cooperate on daily basis. Vertical economic cooperation takes place between local actors, the regional level (Lower Silesia regional authorities), and the national level (The Industrial Development Agency in Warsaw) (Interviews, 2010).

Cooperation between public and private actors differs in the economic sphere and tourism. Economic cooperation is very good, for example between local authorities and the Wałbrzych SEZ or private investors in major local investment projects (e.g. Aqua Zdrój sport and recreation centre, two shopping centres). In tourism various types of actor also cooperate: municipal authorities, the spa, sport centres, the theatre, museums, and tourism enterprises (travel agency, owners of different tourist attractions, hotels etc.). Yet, relations are less intensive. This may be due to the greater number and diversity of players. Moreover, developing tourism seems to be less important to the city authorities than promoting industrial investment. Research shows little NGO activity in this sphere (Interviews, 2010).

Cooperation between the Wałbrzych authorities and neighbouring communities under revitalisation programmes should be mentioned. It covers not only definition of the programme areas etc., but also joint financing of property renovation (*Revitalisation Programme*, 2004 & 2008).

Overall, local residents participate little in making local development policy in Wałbrzych. Public consultation on local development plans, etc. is mandatory (under Polish spatial planning law), but even so little interest is shown. Generally speaking, local society tends to be passive.

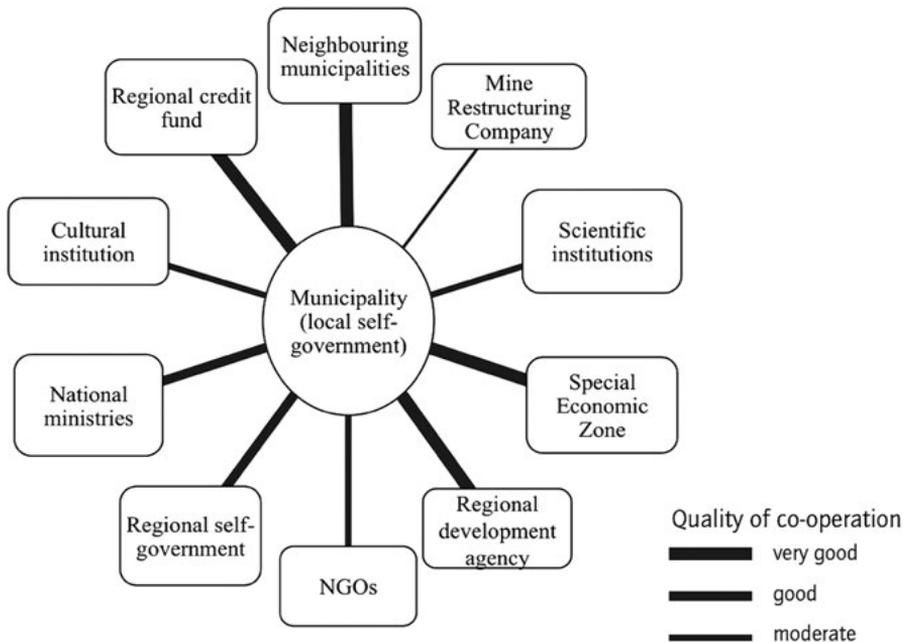


Fig. 2: Quality of co-operation between Wałbrzych municipality and other actors in local development (Source: own elaboration).

Discussion of Results

Analysis has shown that actor involvement in strategic planning in Wałbrzych varies significantly. The municipality plays a key role, being responsible for establishing and implementing local development strategy. Entities subordinate to the municipality are also deeply involved. The patent passivity of local society could be due to the absence of public discussion on the need to close down the mines and on the future of Wałbrzych at the beginning of the transformation processes. Moreover, in the 1990s, at a time when local authority efficiency was low and no coherent development concept for the city existed, no public debate took place.

Under such conditions, weak civic activity received no encouraging impulses from the authorities. The few and weak NGOs have little influence on local authorities, which hinders planning and the effective fulfilment of development policy at the local level. Even representatives of local authorities draw attention to this issue. Special programmes to mobilise the public are needed. Special programmes to reduce youth outmigration would also be advisable.

As far as interaction between policy areas is concerned, the most significant issues are the lack of cooperation between the local authorities and the Mine Restructuring Company (on managing post-mining property, rehabilitation of post-mining areas, and compensation for major mining damage) and conspicuous adverse consequences of this situation in different spheres of development in Wałbrzych. Also unsatisfactory are the inadequate relations between the municipality and the higher levels of administration in the country. This makes itself felt in insufficient investment in the infrastructure, which is at the discretion of higher levels of government. Interaction between other actors seems to be relatively adequate.

According to local actors, strategic documents, and SWOT analysis, the development of Wałbrzych is taking two major directions, tourism and re-industrialization. Given Wałbrzych's mountainous location and the existence of numerous architectural monuments, the growing popularity of active leisure and industrial tourism throughout the Sudety Region presents an important potential, as it allows post-mining features to be included in the development of 'alternative tourism'. Promoting industrial tourism, adventure tourism, and extreme sporting events is thus an important strategic option. This would also directly use the industrial past of the city, e.g. city sightseeing including post-mining properties, motocross on stockpiles or scuba diving in flooded shafts. It goes hand in hand with close cooperation between Wałbrzych and neighbouring municipalities in developing and implementing a joint tourist marketing strategy and tourist products based on the complementary offers of the partners involved. Additionally, this strategic option would contribute to overcoming the region's unfavourable image. A clear vision in tourism development is important with Wałbrzych as the adventure and industrial tourism and extreme sports centre. Nevertheless, although tourism is certainly an economic developmental factor, it does not always translate into economic indicators for regions/municipalities, and the connection between tourism and economic development at the local level is not always so obvious. The key factor is not only the number of tourists, but also what profits the local economy earns by providing services for them (Derek 2007).

As regards reindustrialization, cooperation between local authorities, regional development agency, and SEZ, combined with their notable pro-investment activity, offers good economic prospects for attracting investors. It is therefore necessary to create an image of Wałbrzych as an investor-friendly city. The low level of entrepreneurship and lack of local funds for investment are a real drawback. A pro-investment policy, the creation of business incubators, or a policy to improve the qualifications of the workforce could eliminate unemployment, the imbalance between labour supply and demand, and enable industrial experience of the labour force to be exploited.

The development of cooperation between various types of actor may have positive effects. Cooperation between mining/post-mining territorial units at the regional/national level on introducing advantageous policies and instruments would undoubtedly be more effective than isolated activities. Similarly, integrated activities in the European arena are more effective, also in terms of obtaining EU funds. Another opportunity is cooperation between various types of actors within the municipality.

The above analysis shows the need to take steps to create an image of the city as an adventure tourism and extreme sports centre. With this goal in mind, the city should collaborate with neighbouring municipalities in mutual promotion, and in creating a comprehensive and complementary tourist product package. Coherent operations to change the negative image of the city can become really significant. Attainment of this goal will be facilitated by cultural activities encouraging young people to stay in their city. Such activities would aim to exploit the potential of young people, providing opportunities for them to develop their personal future, and exploiting the post-mining potentials of the city. On the other hand these activities would send a clear message to the outside world, creating favourable conditions for changing the city's image. The other significant aspect that requires improvement is the economy. An important issue is the introduction of strategic options for finding new investors and for developing local entrepreneurship. Creating both real pro-investment conditions and an investor-friendly image of the city is needed.

Conclusion

After the closure of mines, most post-mining cities and regions have to deal with serious problems. Tools to eliminate the adverse social, economic and spatial effects of closure are needed as well as local development strategies. They require prior, profound analysis of the exogenous and endogenous factors of the given territorial unit. Selected endogenous and exogenous options should be combined, as one factor alone is obviously not sufficient. The right mixture of elements in strategic development is essential, as the above case study shows.

Local development in Wałbrzych needs to be based on varied factors. A strategy for Wałbrzych could be associated to a large extent with the development of tourism based on both the natural and anthropogenic values of its surroundings and on its cultural heritage, including the mining heritage. On the other hand, further industrialization is urgently needed because even the most dynamic expansion of tourism in a city like Wałbrzych will not guarantee enough jobs and investment, or, above all, stable, long-term progress. Consequently, re-industrialization and tourism development need to constitute two complementary routes. In this situation, a key challenge is to combine these options and implement the development strategy on this basis. It will certainly not be easy to find appropriate, complementary

methods to implement them and avoid competition between them. What steps should be taken and what local and regional players should be included in the process is the key to the success of these strategies.

The goals can be attained only through the consistent implementation of a development strategy based on the real participation of all important actors. Greater emphasis should be placed on creating and strengthening endogenous factors of economic development. This would require greater involvement of small-scale local investors and institutions from the business environment sector. In the long run it could contribute to the creation of a strong pole of growth on both the local and regional levels.

The implementation of a local development strategy is threatened by the lack of activity on the part of the public and the authorities in the socio-cultural field, as well as in defining strategic goals for medium and long-term progress. The low level of civil activeness might result in inadequate mechanisms for monitoring the local authorities, particularly in the implementation of development strategy. It might also bring inconsistencies or a lack of continuity in strategy. It is of fundamental importance to bring local community activation instruments to bear, and to enhance community participation in city management, particularly in the long term.

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Youth and Regional Development – Participation by Future Stakeholders in Today's Decisions on Post-Mining Regions

Introduction

The SWOT analysis of post-mining regions participating in the ReSource project has – among other things – revealed a high level of unemployment, negative demographic developments, and a lack of cooperation among actors in regional development (Harfst et al. 2010b). These three issues all affect youth in mining regions, who are often seen as a marginal group in society and, according to Fischer (2011) and Kurth-Schai (1988), are at present an unused potential in regional development planning. The same can be said of the Slovenian Zasavje mining region. The transition from an industrial to a post-industrial economy, which began after 1995 when mining began to be phased out, has also worsened job prospects for the young, while the polluted landscape has added to the factors accelerating the brain drain (Marot 2005b; Klančičar 2006). Zasavje has lost 7% of its population over the past twenty years to become “the most aged” Slovenian region (see Marot in part II of this volume).

To guarantee a smooth transition to the “post-mining era”, the regional development agency, the major actor in regional development, has adopted various strategies and programmes, setting out a general vision and guidelines and providing for measures and projects. Although analyses have recognised the problems with youth participation in regional development (RDC 2007; Harfst et al 2010a; see Part II in this volume), they have been addressed only to a certain extent. Young people have to cope not only with the economic transition but also with social change, including changes in values and life style and reduced social power due to late and aggravated financial emancipation (Geržina 1996). Unlike other regional stakeholders, youth as a marginalized group has not been involved in strategy making nor significantly supported through projects. To fill in this gap and discover young people's views on post-mining regional development, a survey was conducted in June 2011. The results are presented in this chapter. The main research questions address the involvement of youth in the development of the post-mining region, their views on the current state of the region, their ideas for future regional development and how they compare with existing strategy, and what measures are needed to encourage the young to remain in the region.

There are six sections to the chapter. The first discusses the theoretical background of youth participation in planning, the second deals with methodology and gives a brief overview of regional statistical data on youth. The following section presents the findings of the survey. The survey data are then compared with previous findings and an Austrian case-study to show trends and compare the situations in Slovenia and Austria. In conclusion, we discuss how the development of post-mining regions can benefit from integrating young people in the policy-making process and the conditions under which youth could be retained in the region.

Youth Participation in Planning and Regional Development – Theoretical Background

Youth participation in planning has been promoted for three decades, but so far hardly put into practice (Checkoway et al. 1995; Adams, Ingham 1998). In the planning literature, young people were first mentioned as an important actor group in development by Lynch (1977), who described how youth comprehends and is affected by the territory in which they live. The World Commission on Environment and Development (1987) recognized youth as the direct heirs to the consequences of current environmental and social decisions, a view confirmed by the Convention on the Rights of the Child (UN 1989). The Convention gives young people the right to participate in decision-making processes in accordance with their capabilities. Similarly, the 21st principle of the Rio Declaration (1992) and the chapter on “Children and Youth in Sustainable Development” of the Agenda 21 (1992) required that youth should participate actively in all relevant levels of decision making because it affects their lives today and has implications for their future.

The Aarhus Convention (1998) saw new types of planning emerging such as collaborative planning (Healey 2006), and demanded equality, openness and transparency in planning policy development (Tewdwr Jones 2004). Slovenia has accordingly introduced the right of all potentially affected parties to be informed and participate in planning procedures and the adoption of environmental measures and policies. Guidelines for public participation are laid down by the Act on Environmental Protection (ZVO-1 2004) and the Spatial Planning Act (2007), but the anticipated results are not attained in practice. As Marot (2005b; 2010) has shown, participation does not go beyond the “informative level”. Public hearings provide information about development proposals and offer opportunities to respond orally or in written form. But feedback is usually not given on whether and how comments are taken into account in the final version of plans. Creative forms of public participation requiring extensive input, such as focus groups, workshops or round tables, are rarely given an official place in planning procedure (Marot 2010).

A similar approach to public participation was taken in drafting the regional development programme under the Promotion of Balanced Regional Development Act (1999), the only official regional strategy. The regional development programme, which provides guidelines, objectives and project proposals, is the result of consultation involving a broad range of regional actors. Nevertheless, the strategy itself does not present the overall vision of regional development as recognized by the local population: only representatives of companies, municipalities, NGOs, and the like participated in its preparation. According to Knowles-Yanez (2002), planning has little room for incorporating youth concerns because the development process is dominated by the economic interest. Frank (2006) also argues that differences in work styles and languages leave both adults and youth unsure of how to interact.

The same situation prevails in Zasavje. Previous research (Marot 2005a; Murn & Skrinar 2009) has shown that young people have a positive attitude towards the region, but because of the economic situation in 2011 they saw little perspective for future regional development. Most commonly, young Zasavje professionals move to the neighbouring Ljubljana region, which offers better employment prospects and a more attractive quality of life than the deprived post-mining landscape (RDC 2007). Since they were born at a time when mining was coming to an end, they failed to adopt the regional identity closely and exclusively focused on mining (Marot 2005a). Current projects initiated by youth organizations, such as the construction of a youth centre and hostel in Trbovlje, international student exchanges, a summer school developing tourist routes of mining attractions organized by the ReSource project, have shown that young people can be creative and are an inexhaustible source of ideas. With adequate financial and human resources, youth involvement can thus contribute significantly to regional development and the attractiveness of the locality.

Methodology

For the purposes of this research, "youth" was defined as the population aged from 15 to 30. The broader range of age was decided on the basis of a sociological definition of youth (Nastran Ule 1996). Similar definitions are used by the National Statistical Office (14-29 years; SORS 2011) and the EU Youth in Action Programme, which targets young people between the ages of 13 and 30 (Youth in Action 2012). This covers both adolescents and active job seekers between 26 and 30 who might be willing to participate in local and regional development.

19.5% of the population in Slovenia belongs to the age group as defined (406,910; 2011). The figure for Zasavje (19.2%, 8463) is comparable to the national and EU average (19.5% age group 15-29, 2007) but considerably lower than in the "youngest" EU nations such as Slovakia or Poland with the highest proportion (24%) of young people (Youth in Europe 2009).

In the decade 2001-2011 the number of young people in Slovenia declined by 12%; Fig. 1 shows regional age group dynamics over the past 20 years. Major indicators clearly show not only that the population of Zasavje is decreasing but also that it is ageing; for example, the regional ageing index¹ of 139.5 was above the national figure (116.8) in 2011, and the average age of 43.1 also exceeds the national average of 41.8 (SORS 2012).

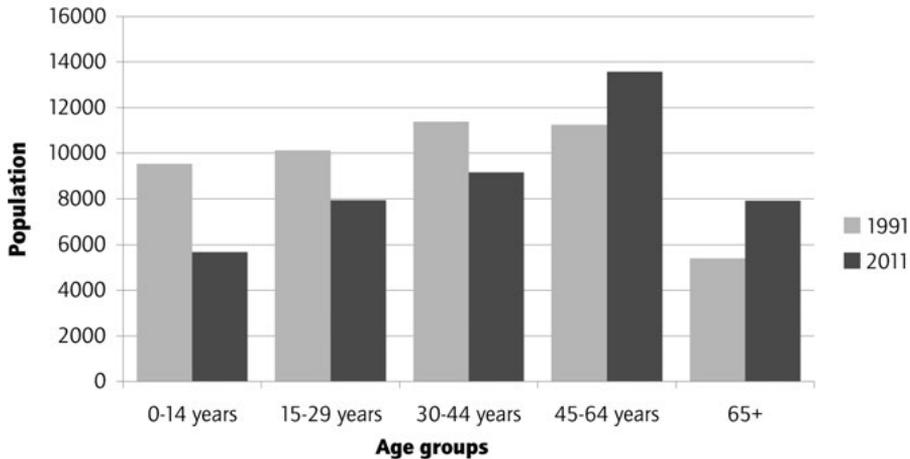


Fig. 1: Population of Zasavje by selected age groups, change between 1991 and 2011 (SORS 2012)

To explore the views of youth on the region and their development, a web survey was set up in June 2011. A web survey was chosen because it does not require a substantial budget, gathers data quickly, and can reach individuals otherwise difficult to contact or locate (Frippiat & Marquis 2010; Wright 2006), which proved to be the case when the survey was conducted in June, a holiday period in the academic year. What is more, the range of the age group did not allow unified collection of the data since the sample included high school students, university students, and people already in work. The survey was created in the Survey Monkey web survey application and distributed in several ways: through Zasavje youth organizations member mailing lists, by publication on the Regional Development Centre web site, through personal contacts, and through two high schools, although the last channel was very limited due to the holiday period.

The questionnaire was in three parts with a total of 22 questions. The 7 questions in the first part investigated regional identity and recognition of the region, the second and most extensive with 11 questions inquired about current and future regional development, and the

¹ Ageing index is the ratio between the old population (aged 65 years or more) and the young population (aged 0-14 years), multiplied by 100 (SORS 2012).

third, with 4 questions, sought basic information on participants. Altogether 92 people participated (1.1% of the whole age group in the region), of whom 73 with an average age of 24.6 answered all questions. The territorial dispersion of respondents corresponds to the population size in each of three Zasavje municipalities. The low response rate resulted from the time of the survey, the length of the research, the share of population that can be reached by this method 53 to 73% in this age group (Fripiat & Marquis 2010) and above all the generally lower response rates for web surveys than for other modes (Lozar Manfreda et al. 2008). A further challenge was the wording of the questions. As Funkl (2010) argues, it is difficult to formulate questions to appeal to both 15-year-olds and 30-year-olds.

The largest group of respondents, 27 of 72 (37%), were students, employed persons follow with 36%, 17% were high school pupils, and 10% were unemployed (the regional figure was 13.7% in November 2011; SORS 2012). 44% of respondents had finished high school, 24% university, and 14% grammar school. In addition, 14% had graduated from the 2 to 3-year college programme, while 10% had a master's degree or PhD. Of the 26 in employment, approximately half (52%) had a job in the region and the other half outside the region (mainly in the capital city Ljubljana). The most common sector of employment was services (37%), followed by industry and administration (10%). The sectors information technology, education, research and art each employed 7%, while construction, environmental science, and catering followed with 4% each.

The authors were able to add a comparative perspective to the Zasavje survey because a similar study on the role of youth in a post-mining region had been carried out in the Austrian Eisenerz region (Funkl 2010). This study defines youth as the population between the ages of 15 and 27. Again, a web questionnaire was used, although a longer one with 39 questions, which only 224 out of the 933 respondents fully completed.

Survey results

a) Regional identity

Regional identity has been introduced to regional planning theory as a more socially, people-oriented approach (Zimmerman et al. 2006). Both Blotevogel (1996) and Paasi (2000) argue that regional identity is prerequisite to successful development. Schielewenz (2010) discussed the regional identity of mining regions in particular and its contradictions. While the common traditions and cultural heritage of mining should contribute to overcoming inefficient economic structures, fixation on the past can hinder the region from exploring new development paths. The questionnaire therefore first explored the regional identity of young people to discover whether they were still attached to the mining heritage and what they saw in the way of starting points for transforming the region.

Attachment to the region was confirmed by a majority: 34% considered themselves significantly attached to the region, 44% attached, 9% were undecided and 12% were unattached to Zasavje (Fig. 2). As mining has been present in the region since its inception in 1755, the follow up question asked about the meaning of mining and its tradition for respondents. For the highest percentage of respondents (40%) the mining tradition was neither very important or unimportant. For 33% mining meant a lot, for 19% little, and for 8% very little.

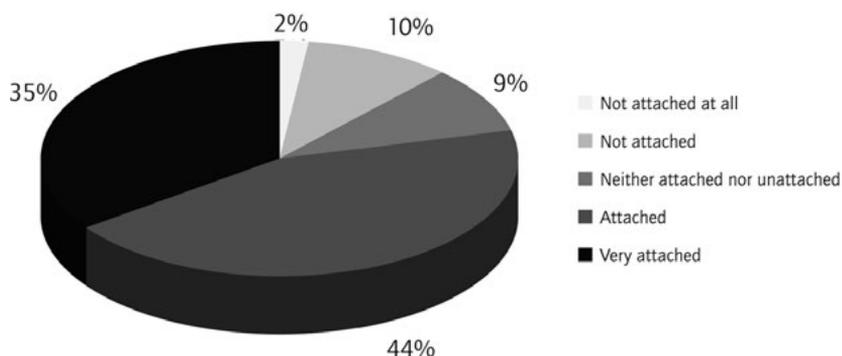


Fig. 2: The level of attachment of youth to the region (own findings)

Beside directly evaluating the attachment of young people to the region, the survey asked respondents to name characteristics of the region as seen by people from outside. A negative image of the region was confirmed, with the highest scores for categories like pollution (51), cement industry (24), »heavy« language² (21), old basic industry (5), and backwardness (2). Neutral categories followed: narrow valley and unfavourable relief, artists (mentioned by name), physical features, e.g. river Sava, and politicians. Mining was mentioned 52 times, which confirms mining as the still dominant characteristic of the region. Respondents also evaluated a preset list of attributes to describe the region. The only positive connotation was adjacent green areas, otherwise the region was judged to be undeveloped (66%), lagging behind (63%), without perspectives (54%) and averse to immigration. As far as attractiveness was concerned, 39% considered the region unattractive while 26% thought the opposite.

The section of the questionnaire on regional identity investigated differences between youth and adults, future and present decision makers. The attributes describing personal character were evaluated separately for youth and adults. Overall, young people saw themselves more positively than they did the "older generation", defined here as those over 30. This is a one-sided evaluation since adults did not participate in the survey. As shown in Fig. 3, youth saw themselves as much more educated, motivated and progressive.

² People from Zasavje have a nationwide reputation of speaking a very "heavy" language, something they perhaps have in common with other European industrial regions.

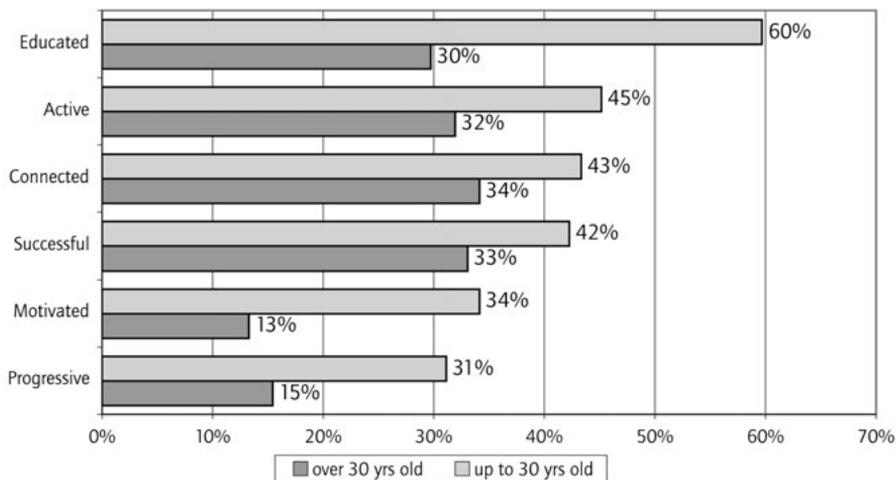


Fig. 3: Comparison of characteristics of people under and over the age of 30 years as evaluated by youth (own findings)

b) Current regional development

The next set of questions dealt with the current situation in regional development and its evaluation by youth. The major question focused on identifying problems; service provision was also assessed in the questions on the quality of life in the region. Participants listed numerous development issues in Zasavje. For easier comprehension they were grouped under 5 headings: mentality, environment, labour market and education, economy, and policies and development. Among the most frequently mentioned problems was pollution, followed by the narrowness of people’s views hampering regional and local development. Development was also seen as limited by poor transport links with other parts of Slovenia, e.g. the distance to the nearest highway junction. The lack of jobs that require qualified staff and professional knowledge was shown to be a crucial problem (Tab. 1).

The quality of life in the region was evaluated in greater detail on the basis of eleven elements. Opportunities for sport and recreation scored highest – 3.5 on a scale of 5 (very satisfied), while the quality of the environment had the lowest score with 2.6 (moderately satisfied). On satisfaction with living conditions, an average score was given for the availability of green areas (3.3), the health service (3.3), childcare (3.3; only 70% of participants responded), educational opportunities (3.2), and shopping (3.2). Young people were less enthusiastic about the state of the transport network, public transport, entertainment, and shopping. Additional statements referred to individual local environments (e.g. better health care provision in Trbovlje and a cycle path in Zagorje, etc.), but in general more shopping opportunities and above all more entertainment such as concerts for all age groups were wanted.

Tab. 1: Major problems of regional development in Zasavje clustered by topic

Policies and development	Economy
Centralized decision making in case of energy and regional policy No sound plan for project implementation Proximity to Ljubljana limits options for regional development Polarity of interests: industry vs. tourism Inefficient youth and student organizations Lack of funds Lack of fresh ideas	Too slow transformation from old industrial into post-industrial region Decline of mining activity and closure of industry and other larger companies Lack of new investment Non-utilized cultural heritage
Environment and territory	Labour market and education
Unfavourable physical conditions (location of settlements, further construction of infrastructure) Pollution, degraded environment Poor transport connections with the rest of the country Dilapidation of old industrial and housing buildings Unattractive for youth to live in the region	Lack of jobs Brain drain and emigration of youth Ageing of the population Poor working conditions Unskilled work force Mixed ethnic structure as a consequence of former work immigration from Southern parts of Yugoslavia Lack of motivation to prevent brain drain No university education opportunities in the region
Regional mentality	
Narrow-mindedness Generally no will to cooperate in decision making Reluctance to change Apathy and pessimism	

c) Future regional development

Most of the questionnaire was concerned with the views of young people on the future development of the region and their (potential) participation in regional strategy and decision making. Participants drew up a scenario of future development for Zasavje, evaluated existing and future projects, described major regional development goals and drafted their own projects.

The scenario for the development of Zasavje was formulated on the basis of 10 statements evaluated on a 5-point scale showing the level of agreement by respondents with each statement. As Fig. 4 shows, more than half of respondents agreed that mining would remain an economic activity of the past, that the environment would remain polluted, and that population would decrease, making Zasavje into a dormitory region.

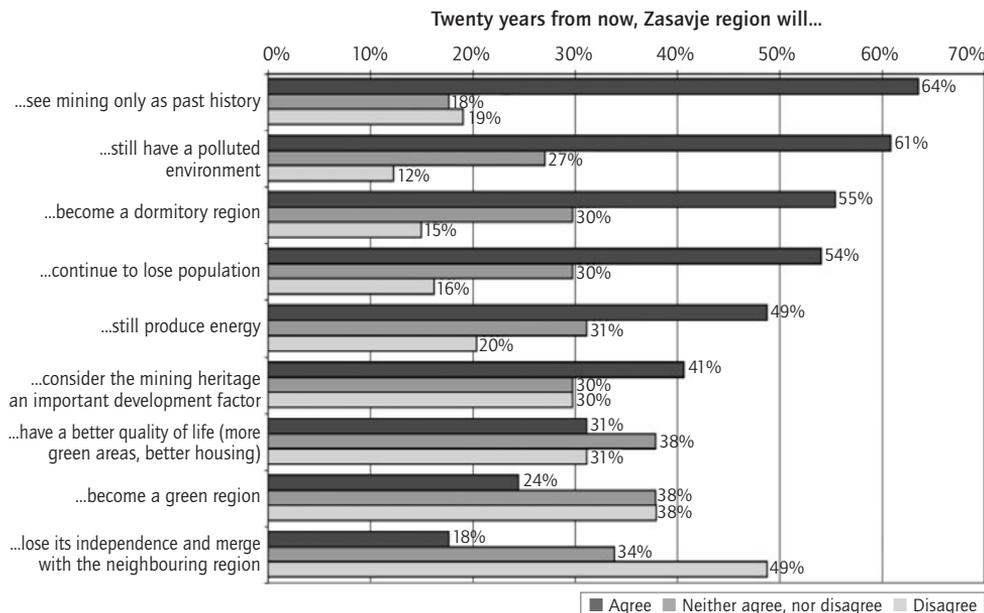


Fig. 4: Evaluation of scenario options (own findings)

The mining heritage was recognized as an important element in the future development of the region by 40% of respondents. They were uncertain whether the quality of living would improve and whether Zasavje would become a “green” region. There was least agreement with the statement that Zasavje region would lose its independence and be incorporated into the Ljubljana urban region (49%). Even though negative statements dominate, more than half of respondents agreed that “Zasavje has a future”.

With regard to the future vision of development, participants were asked to evaluate the importance of existing and future projects in the region. On average, respondents found all the projects important and relevant. The three best scores selected tourism as a prospective activity, for example the development of new tourist products (83%), followed by more general projects to provide recreation areas in the post-mining landscape (75%). Positively acknowledged were also projects in the field of business establishment support (70%), a youth hostel in Trbovlje (63%), utility improvements (60%), the founding of youth centres in Zagorje and Hrastnik (55%), and the renewal of former miners’ housing neighbourhoods (53%). Young people are least convinced (47%) by a new thermo power plant using gas as primary energy source.

After providing their opinion on the regional development scenario and present projects, each respondent was asked to state three major goals the region should adopt. The ten most frequently mentioned were:

- ___Decrease of environmental pollution and provision of a healthy and clean environment
- ___New jobs

- ___Development of tourism (including hiking, tourist farms, centre of education and leisure activities, utilization of mining heritage)
- ___Provision of green and recreational areas to support sport activities
- ___Established support for existing and emerging businesses
- ___Improved transport links with other parts of Slovenia (highway junction)
- ___Greening of industry and closure of production facilities classified as major polluters
- ___Jobs for the young educated working force, reduction of unemployment and improvement of social and living conditions
- ___Relaunch of industrial activities in the region
- ___Education for young people and the establishment of colleges and university

Specific objectives directly relating to mining were mentioned: improvement of the stereotype image of the region as highly polluted and thus unattractive, change in local mentalities, economic transition to the tertiary sector, preservation and renewal of the mining heritage and increase of the region's role in national energy production through the construction of a hydro power plant chain on the river Sava.

The creativity of young people was checked with the question on how they would spend € 500,000 if they could use it for the regional project of their choice. Project ideas could be categorized under the headings business, tourism, infrastructure and housing, services and the others. The most frequent proposal was to support small businesses through subsidies and providing new jobs, with the focus on companies that would employ young people. Tourism was one of the sectors for which development ideas were described in the greatest detail. Money would be invested in better promotion and an appealing trade mark, renewal of mountain huts, establishment of cycle paths and a centre for educational and sporting activities, the development of tourist farms, rafting and related activities, the re-establishment of the closed and dilapidated spa centre Medijske Toplice, and events that would utilize the mining heritage and preserve the region's mining tradition.

The next cluster of projects worth investing € 500,000 can be classified as landscape design, infrastructure and housing. Respondents felt that more should be invested in environment quality, especially air quality; public and green spaces should be upgraded and newly established to provide recreation facilities and playgrounds for children. The infrastructure should be improved together with public transport, and in the field of housing substantial efforts should be devoted to renewing former miners' housing. In addition, a shopping centre should be constructed. In direct connection with mining, closure of the mine was also considered a suitable project.

Although plenty of projects were suggested as relevant for the future development of Zasavje, a sound and viable institutional framework is needed for their delivery as argued in the chapter on regional capacity (see Harfst, Wirth, Lintz in part IV of this volume). Youth sees municipalities as the most important organizations (82%), followed by larger companies (72%)

and small firms (67%). Also significant are various associations (66%). Around two thirds of participants recognized government (61%) and educational institutions (60%) as important, nearly the same importance (58%) was assigned to the regional development agency. Surprisingly, financial institutions were considered the least important organizations for regional development with an average score of moderate importance (45%).

d) The role of young people as actors in regional development

The most important part of the research focused on the active involvement of youth in the current and future development of Zasavje. Firstly, we investigated what organizations youth participates in and how. Secondly, we looked at how young people's ideas are delivered. Thirdly, we considered the present and the future participation of youth in regional decision making.

There are four types of organisation³ for young people in Zasavje:

- **Two youth centres:** Youth centres involve young people in projects on particular topics (European week of mobility, Let's clean Slovenia, etc.), international exchanges, the organisation of cultural events, as well as daily activities (sports, study support, consultation for youth and young families etc.). Centres in Trbovlje and Zagorje focus mainly on high school students.
- **Three student clubs:** Each municipality has a student club which provides cultural events (annual cultural festival, concerts, new year's concert, celebration of Midsummer Eve, thematic events, travelogues), language and skills courses, excursions, sport activities, concerts, and evening classes for adults.
- **Three high school educational institutions:** In addition to their regular programmes, Zasavje high schools organize supplementary afternoon activities for pupils, such as sport activities, interest clubs (maths, logic, and physics etc.), bands, international exchanges, projects to reduce the drop-out rate or promote business, events to attract the local community (farmers market, charity benefits, poetry evenings), and others.
- **Other organisations:** Youth can also participate in organisations established either by various interest groups or with specific purposes.

An important element of the survey was to investigate how young people can bring forward their ideas⁴. The easiest channel is the local youth centre (mentioned in 58% cases), followed by educational institutions (48%) and student clubs (47%). In only 17% of cases can youth deliver their ideas through active political engagement, e.g. organization of protests scored lowest (13%).

3 Their activities have been derived from their web sites.

4 Multiple choice was possible.

The vast majority (92%) of respondents believed that there were opportunities for youth to participate in the development and implementation of different projects. However, despite this high score, only 51% of young people had actually used them, mostly through youth clubs or even through the youth divisions of political parties. In their free time, most young people take part in projects including sporting events, concerts, and workshops. They also participated in heritage preservation projects.

Regional development relies on human resources. The probability of young people leaving the region was looked at. 39% answered there was a chance of them leaving, 34% were most likely to stay, 16% would certainly be leaving, and 4% would be staying in the region. 7% had not yet considered the idea.

Although not noticeable at the present level of participation, a majority of respondents (84%) were interested in cooperating in regional development. The most favoured form of participation was the workshop or working group (68%) in which regional strategies are drafted. Half of participants would ambitiously assume leadership of the project, 48% would like a vote on final decisions about development, 47% would engage in project development and implementation together with friends. The least popular option for participation was responding to calls for innovative ideas in the region (35%) or in public hearings on development policy (30%).

Discussion of the results

The survey showed that young people have sufficient knowledge about the region to soundly analyze the current state affairs as a precondition for further development. Comparison with Marot's findings (2005) shows that, although the state of art in the region is mostly associated with negative attributes, young residents also see it as green and agreeable, providing positive motivation for further development. The situation is similar in Austrian Eisenerz. Although critical of the region, slightly less than half the respondents from Zasavje (44%) nevertheless consider themselves attached to the region. According to Funkl (2010) the figure for the Austrian region was lower (26%). Nearly a fifth of young Austrians from Eisenerz were uncertain about their attachment to their region compared to only one tenth of young people from Zasavje.

Similar studies (Fischer 2011; Funkl 2010; Marot 2005) show that attachment to mining as the traditional regional activity is moderate. While participants recognize the importance of mining, its heritage and traditions, they also agree that the future should not depend solely on the mining past. As Fig. 5 shows, the terms "mining" and "industry" seem to be more strongly associated with the region by Zasavje youth (60% and 30% respectively), than by young people from Eisenerz (26%), which could be partially explained by the more protracted process of mine closure in Slovenia.

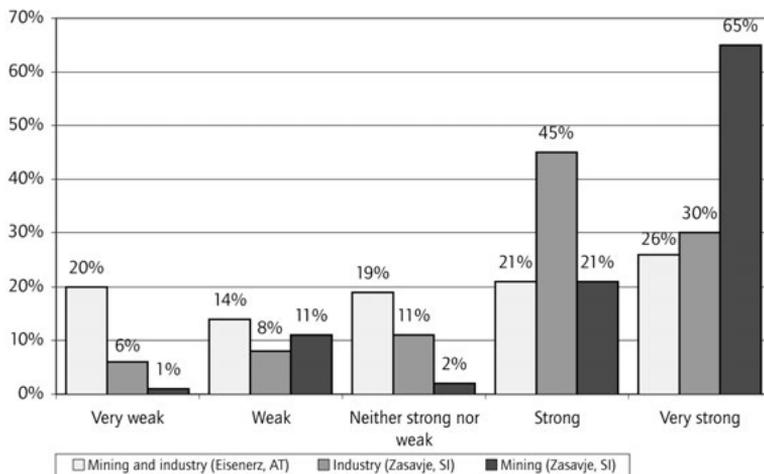


Fig. 5: Strength of relation between industry/mining and the region as perceived by the youth (own findings; Funkl 2010)

Similar percentages of Austrian and Slovenian youth were considering leaving their region (about one third). They gave similar reasons: lack of jobs, health conditions, education, family and travelling. A comparable proportion of respondents in the two countries was convinced they would not leave the region under any conditions (Slovenia 10%, Austria 4%) (Fig. 6).

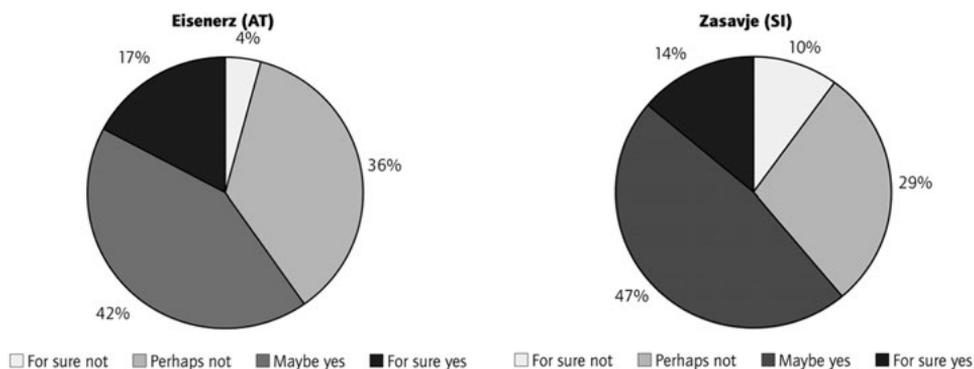


Fig. 6: Share of youth considering themselves likely to leave the region in the future (own findings; Funkl 2010)

Tourism was the most favoured economic activity for the future. Both groups of respondents identified the post-mining regions of Eisenerz and Zasavje as future tourist regions, proposed various projects for realizing this aim, and also stated that they would like to work in the sector. While around half of Slovenians were keen to work in administration and government and in research,

Austrians were more interested in jobs to do with nature preservation, health provision, and new technologies. However, they were more pessimistic about the chances of finding work in the region (66%); only 10% were confident they would find a suitable job since the structure of the labour market in both these post-mining regions fails to match the expectations of young people.

The views of young people in Zasavje on regional development over time can be at least partially assessed by comparing the ReSource survey and research on regional identity carried out by Marot in 2005a, which covered only high school pupils. There is no significant difference in the perception of regional characteristics or in attachment. In neither the past nor the present have youth been significantly attached to the mining past. This should facilitate their integration in regional policy making.

The two surveys differ with regard to participation and integration in youth activities, which may have to do with differences in the age groups under consideration. While high school pupils primarily took part only in sport, their elders participated in activities organized by youth centres and student clubs. The pattern of participation in our survey also differs from the findings of the study on the European level (Youth in Europe 2009) which found the participation in recreational groups to be the most popular type of engagement for the age group 16 – 29. Other groups and organisations were not nearly as popular (8%) as they were in the case of Zasavje. The study also reveals that only 4% of the respondents stated that they participated in more demanding, politically engaged activities.

The most recent results show a moderately high level of willingness to participate in regional decision making process. This deviates strongly from Murn and Skrinar's findings (2009), which showed that two thirds of youth between the ages of 12 and 19 would not cooperate with an organisation that makes decisions important for youth. Most would choose passive forms such as voting, while now they would actively engage in the implementation of projects. The same survey showed that only half of young people are concerned about and envision future development. On the contrary, the latest results stated here, which reflect the opinion of a broader group of youth, suggested several future development scenarios, goals and projects to be delivered accordingly.

As such, the goals and projects proposed by young people largely match the latest regional development programme of the Zasavje region (RDC 2007), notably its strategic approach. In addition to work for skilled and educated youth, the quality of life was the most important factor. A higher quality of life was associated with the provision of green and recreational areas, a cleaner and healthier environment. Services were in general satisfactory, although respondents mentioned a lack of opportunities for shopping (also confirmed in Marot 2005a). Overall, entertainment opportunities for youth were seen as underdeveloped by all the studies taken into account and would have to be improved to retain young people in the region. Projects relating explicitly to mining and provided for in the regional development programme, such as revitalization of former miners' housing or of areas damaged by past coal-mining activities, were also mentioned.

Conclusion

The survey conducted in the Zasavje region has shown that youth as regional actors can participate in regional development along with other, more established and politically stronger stakeholder groups. They have adequately evaluated the current state of the region and envisioned a future path for development. As they see the region and the dominating regional identity, they would rely on the mining heritage and tradition, but also make a fresh start with new economic activities not yet very "popular" in the region, such as tourism. This confirms Healey's (2006) assumption that youth is capable of reformulating how problems are perceived and tackled. In line with Knowles-Yanez (2002) and Frank (2006), young people have produced fresh and sustainable ideas not necessarily driven by economic interests but directed towards creating green and agreeable living spaces. They mostly reject the industrial and mining past as a path to economic development but do not deny the place of the mining heritage in establishing the regional identity and developing tourism.

With the numerous projects they propose and their confirmed interest in participating in different forms of decision making, young people establish themselves as "future decision makers". Youth are interested in active engagement in leading projects and making decisions likely to produce consensus on future development with the support of all regional stakeholders. Their capacity to participate in strategic planning is also evidenced by the match between the goals they propose for development and actual regional development policy.

The most important factors in preventing youth outmigration is to guarantee new jobs and a high quality of life. The development goals defined envisioned jobs in the business and service sectors. Scenarios, objectives and actual projects placed great emphasis on greening the region, which would first involve rehabilitating the polluted environment, then establishing green and recreations area and providing public transport and leisure activities. Such an approach would be in keeping with the sustainability goals of the Rio Declaration and Agenda 21 (Pring & Noe 2002), which claim youth participation is an important element of democratic society.

The comparison between two mining regions, one in Slovenia and the other in Austria, has shown that in more than one Central European country youth is not strongly attached to mining and that young people are inclined to leave. Support is also strong in both regions for tourism as an economic alternative. This is in keeping with the policy recommendations by Osebik et al. (2011) who argue that post-mining regions should seek not only to enhance the quality of life but also provide special programs to involve youth in development, special incentives for well-educated people to remain in the area, and above all to involve them along with other groups in strategy building for regional development. This would satisfy the policy requirements and guidelines on youth participation, which have hitherto been inadequately met. As a number of authors have argued (Frank 2006; Checkoway et al. 1995), young people in post-mining regions would then be able to realise their potential for contributing to planning and come to be considered a valuable regional resource.

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Strategic Destination Management in an Alpine Mining Region – Adventure Sports Tourism as Chance for Image Transformation

Introduction

When mining comes to an end in a region, tourism is one of the favourite options. More often than not it is believed to be easiest way to achieve economic restructuring. What argues against this belief is that tourism is now one of the most competitive industries worldwide, especially because customers are fully mobile and demand high quality, well-managed services. Another obstacle are the severe problems typical post-mining regions face, like negative demographic trends, unprepossessing infrastructure, a lack of service orientation among the remaining population, and the associated unfavourable image.

How can the path to tourism-driven development nevertheless be taken? There can be no satisfying, overall answer. Moreover, the potentials and preconditions differ from one region to the next. This chapter therefore seeks *one* possible solution, implementation inclusive, for *one* specific case: strategic destination management in the "Styrian Iron Route extreme and endurance sports region".

We begin with the theoretical basis for the case study, defining the general concepts of "destination", "strategic destination management" and "adventure tourism" without regard to the mining context and combining them into an integrated, practical concept for the case study presented in the last chapter of this paper. The case study on the region around the Styrian Erzberg mining area, based on a practical regional concept, is refined and combined with the theoretical findings of the first part. We conclude with a discussion of transferable aspects and recommendations on the basis of the case study. At the end of each theoretical section a small info-box shows practical findings for post-mining regions, integrating the fundamental concepts of strategic destination management.

Destination as Competitive Unit

Everybody has certain associations with the everyday term 'destination.' For most of us it conjures up a postcard image of past and future holidays. From a scientific point of view the situation is more complex, although the traditional notion of destination is not incorrect at all. Destination is doubtless an even more complex concept than much discussed and manifold regional concepts (Brunn et al.1996).

The literature offers a number of definitions. First a geographical area to which a person chooses to travel (Luft 2007). The spatial dimension of the concept can be divided into local, regional, national or continental. Tourism destinations can be a tourism space on different scales. Ranging from the smallest entity, a hotel or other type of accommodation (e.g. apartment, camping site), to the local unit level (village, town), and the regional and supranational levels. From the traveller's point of view, the spatial extent of a destination is determined by expectations, purpose, and distance. Travel distance and destination dimensions may correlate. It is assumed that the farther people travel the broader will be the limits they set their travel destination. This assumption does not apply for cities and islands or other clearly limited entities (Luft 2007).

The simple WTO definition states that a destination is a place incorporating tourist attractions, products, services and facilities used by a visitor (WTO 1993). Other definitions vary from a strategic competitive unit comprising an amalgam of many individual services, or a tourism product for a certain target group (Ritchie & Crouch 2003; Fischer 2009; Bieger 2008).

Generally, a destination does not correspond with administrative units but is defined by scenic or touristic commonalities as perceived by the tourist. A destination is thus an image generated by the demand side, the visitor, and not by the supply side (Wiesner 2008). This conflicts with the systemic approach (Fischer 2009; Bieger 2008) that treats the destination as a group of interrelated elements that also relate to an external environment. The external environment competes with destination systems and influences the general legal, technological, and cultural framework (see figure below).

This model best fits the integrated perspective of regional management in practice, because it incorporates both demand side and supply side actors and other influencing factors/actors. Sustainable and integrated destination management naturally needs effective partnerships among economic stakeholders and local/regional residents. This will be assessed in theory and practice in the following chapters.



Fig. 1: Destination system according to Bieger (2008, 61)

Checkbox for post-mining regions:

—Status-quo in post-mining regions

- Post-mining regions are internally and externally not perceived as tourism destinations in general
- Perceived as mining/industrial region and accordingly bad overall image

—Perspectives for post-mining regions

- Development of a clear vision (ideal future picture) and overall strategy
 - Based on and harmonized with natural and cultural prerequisites
 - Matched with the region's inner perception (broad agreement among several actors)
 - Taking advantage of established mining identity and cohesion
 - Clear scope statement ("what to be or not to be")

Strategic Destination Management

With the title of this publication in mind, we need to clarify another term: so called (strategic) destination management. Wiesner gives us a vivid description of the concept, putting its purpose and problems in a nutshell:

"Destination Management resembles a conductor who has to bring together different players of different instruments in an orchestra, in order to create an optimal musical enjoyment. If only one misplays the aural pleasure is over and criticism will be annihilating. If the interplay works perfectly even worldwide glory could be achieved." (Wiesner 2008)

The crucial task of destination management seems to be to coordinate institutions and suppliers. In general, more than one provider offers tourism products at a destination, although concentrating all forces and responsibilities in the hands of one institution would definitely be more efficient and effective.

If a conventional place or region is to be turned into a real destination perceived as such by the visitor or prospective guest, a consistent product, professional marketing management, a strong brand, and a clear image are needed (Wiesner 2008). This is what destination management does or should do. Another central aspect is consumer orientation (Luft 2007). In other words, destination management relies primarily on the guest's perception and not on the perception of resident key players. Generally, strong consumer orientation is indispensable and reasonable, but in a broader context it may neglect the systemic approach in destination management as an integral part of regional management (see the Styrian Erzberg case study in the last chapter).

Contrary to conventional tourism management, strategic destination management is based on long term considerations, pooling all resources to enable effective sales, marketing and controlling and development in the long run. As mentioned above, the biggest challenge is that a destination can not be managed like a company or business by reason of its team players and stakeholders. Many interests, side-by-side facilities and services have to be harmonised by destination management aiming to represent one competitive unit or well organised supply chain (Dörfler et al. 1998; Bratl & Schmidt 1998).

According to Fischer, strategic destination management is characterised by central organisation in charge of the strategic coordination of a tourism network with formal structures and clear common goals and task allocation (Fischer 2009). Another way to distinguish strategic destination management from conventional destination management is classification by actor aggregation levels. In this context Fischer (2009) identifies three levels:

- The micro level of the individual company
- The meso level, the destination defined as an inter-organisational entity
- The macro level including all public actors in a certain destination area

The mission of strategic destination management (as developed by an interorganisational company at the meso level) is to balance these levels and different stakeholders.

Nonetheless a clear picture of strategic destination management is still lacking or, as Harrill puts it: "Promising approaches have been forwarded within various areas that are relevant to planning and managing tourism in destinations, but the issue of strategic destination management per se has not been clearly addressed and a coherent paradigm around destination management continues to be lacking." (Harrill 2009).

Checkbox for post-mining regions:**—Status-quo in post-mining regions**

- Lack of tourism infrastructure and investments
- Lack of professional knowledge and experience in the tourism sector
- Deficient cooperative knowledge
- Lack of clear strategic direction and planning

—Perspectives for post-mining regions

- Development of a destination management company
 - Including external professionals as well as local residents
 - Linking several relevant tourism suppliers (product chain)
 - Coordinating and balancing diverging interests
 - Mouthpiece for tourism issues (e.g. negotiations, marketing)
- Evolution of a consistent destination brand shared by all
 - Development of a continuous product supply chain
 - Based on clear and harmonized strategic focus

Adventure Sports Tourism

There are many reasons why people decide to travel and why they choose a certain destination for their stay. Their motives can be private or have to do with business; adventure (sport) tourism may instinctively be assigned to the first category, although the literature relates sports tourism to both (see quotation by Gibson et al. below).

Adventure tourism, often considered an integral part of and future trend in adventure recreation, combines sport, recreation, nature and travel. According to Williams & Soutar (2009) "... adventure tourism is a major niche within the special interest tourism sector, and is said to be the fastest growing outdoor tourism market sector ... While statistics vary due to the diversity of adventure consumption, it appears adventure travel's growth is significant and likely to continue«.

While the literature highlights the relevance of the outdoors, in other words the orientation on nature, risk and uncertainty are key motives for the adventure tourist. But how can a product be promoted and sold to the consumer that cannot be specified or predicted? As cited by Beedie & Hudson (2003), Price (1978) argues that any outdoor recreation that is planned cannot be an adventure. The paradox of adventure tourism is that the more it is planned, organised or predictable the more it eliminates the idea of adventure. Nevertheless, well-organised adventure tours, packages, technologies and security measures have brought rapid growth to this sector.

It is still difficult to distinguish adventure tourism from connatural products like adventure travel, sport tourism, nature tourism, ecotourism, commercial expeditions, outdoor recreation and outdoor education (Buckley 2006). Elements of adventure tourism can of course be

found in all of these examples, although the risk component takes a back seat except in sport tourism. It thus seems self-evident that the terms 'adventure' 'sport' and 'tourism' harmonize best and may be an opportunity to sharpen product placement and destination profile.

Though there are significant differences between these assumedly connatural terms. Gibson proposes a definition of sports tourism as "leisure-based travel that takes individuals temporarily outside of their home communities to participate in physical activities, to watch physical activities, or to venerate attractions associated with physical activities" (Gibson 1998). A similar definition is offered by Standeven & De Knop (1999, cited by Weed 2009): "All forms of active and passive involvement in sporting activity, participated in casually or in an organised way for non-commercial or business/commercial reasons, that necessitate travel away from home and work locality."

The first definition distinguishes between three categories of sports tourism: an active form and two passive forms, defined as "travel to watch and travel to venerate or worship" (Gibson 2007), whereas the second definition mentions only the active and passive types of sport tourism. Figure 2 shows how sport and adventure tourism are interlinked according to Hall (in Hinch & Higham 2007), mentioning three related domains of tourism: hallmark events, outdoor recreation (adventure tourism) and tourism associated with health and fitness. Adventure tourism is therefore inseparably linked to sports tourism since "the domain lies in recreational activities that occur within natural settings ... commonly classified as sports" (Hinch & Higham 2007).



Fig. 2: Related domains of sports tourism according to Hall. Source: Weed (2007, 46)

But what kinds of sport are covered by sports adventure tourism? Buckley (2006) lists some examples for adventure sport tourism products such as diving, snorkelling, whitewater rafting and kayaking, skiing, snowboarding, hiking, trekking, biking, climbing, mountaineering, sai-

ling, seakayaking, paragliding, horse riding regardless of whether the clients themselves operate the equipment. Of course this list makes no claim to being exhaustive.

Keeping these multifaceted definitions of sport and adventure tourism in mind, we focus on tourism products where the principal attraction is an exciting sport activity practiced primarily in natural settings regardless of whether the client is involved actively (in terms of physical activity) or only as a passenger or spectator. Risk and uncertain outcomes may also interest the consumer.

Checkbox for post-mining regions:

___Status-quo in post-mining regions (natural potentials manmade or not as basic conditions)

- Mining heritage and image in most of the cases matches perfectly with "adventure" (e.g. underground atmosphere, mysticism)
- Availability of open space for adventure sports facilities
- Compatibility with former use (motor-cross bikes) due to intensive exploitation
- Less reticence among residents towards "dirty sports"

___Perspectives for post-mining regions

- Development of a "hard", "rough", thrilling and "loud" image in contrast to cultural/museum tourism
- Costly rehabilitation measures are kept to minimum
- Specific target group and niche product (USP in the already saturated tourism market)

Destination Management and Adventure Tourism

Tourism organisations usually operate in a limited area, side-by-side or even against each other, missing opportunities for cooperation and synergies. An organisation that can handle destination management could be a so-called destination management company (DMC). Opinions differ on what activities a DMC should cover.

Luft (2007) distinguishes between product and sales policy as the core activities of destination management. The former includes service design and planning, as well as the coordination of tourism products. The latter covers marketing activities. Other authors such as Sainaghi (2006) add subdisciplines like research, knowledge management, training, internal and external marketing, communication and operative management.

Bieger (2008), in contrast, offers a more practically orientated overview of DMC tasks :

- ___Improving attractiveness and image
- ___Consulting local/regional residents
- ___Tourist services (e.g. information, organisation of events)
- ___External Marketing (e.g. brand policy)
- ___Development of a coordinated destination strategy
- ___Representation of local/regional interests

However, there is general agreement that destination marketing is central to destination management and DMC responsibilities. A number of analytical steps, normally based on market research, need to be taken before tackling a coherent marketing strategy. A SWOT analysis can be made on the basis of location, market and environment analysis. Goals are then set, followed by strategic planning, implementation, and controlling (see Fig. 3).



Fig. 3: Stages of destination marketing by Luft (2007)

In what follows we focus on destination branding, which is inextricably involved in the destination's image, one of the most comprehensive and central issues in destination marketing. Images can be summarised as opinions, pictures, ideas that (potential) guests associate with the given destination. An image is always subjective and originates at the individual level (Herzig 1991). Tourist buying behaviour is determined by the destination image, demonstrated by the clear relationship between positive perceptions and positive purchase decisions (Selby & Morgan 1996).

Luft (2007) distinguishes two components of image: the destination name, and tourism products and competences. The tourist associates certain pictures with the travel destination name and creates an image of the area he/she is going to visit. This perception is also based on tourism core competences and the products provided. Selby & Morgan (1996) offer a more sophisticated definition of image. They suggest distinguishing between naive (or projected) and re-evaluated image (modified image upon visiting the destination). However, a positive image including competitive products can be transmitted only if a professional DMC is able to create a coherent and distinctive umbrella brand, standing out from the crowd of globally interchangeable tourism destinations.

Alpine destinations have a particularly high potential for adventure sport tourism due to their natural conditions. While creating an image of wilderness, isolation, and untouched nature is supposedly an easy task for a destination company, keen competition obliges alpine destinations to develop unique selling propositions to generate competitive advantages. As far as our case study is concerned, the Styrian Erzberg, an isolated destination brand in the midst of the Austrian Alps, another challenge or even handicap aggravates the competitive position: the mining heritage of the area. The negative image many mining regions have to combat, as well as the economic and social conditions in the surrounding region offset the parameters for destination management. How a niche product like adventure sport tourism might solve this problem is discussed in the following chapter.

Concept "Extreme and Endurance Sports Mekka around the Styrian Erzberg"

This section describes the strategic approach to adventure and sports tourism development in the Steirische Eisenstraße (see also chapter 2.4) as a promising option for post-mining development and the associated image transformation. This section draws largely on a strategic concept for a LEADER-Project (Tiffner 2011) on experience gained in the ReSource project. An enhanced strategic concept has been developed on the basis of both regional know-how and the broad scientific literature. Qualitative stakeholder interviews, specific tourism workshops with key actors, and detailed regional tourism data have provided the empirical component.

This case study demonstrates an innovative and promising conception that seeks to overcome the generally disadvantageous situation of declining mining regions. It integrates the natural heritage (vast alpine landscape), the cultural heritage ("hard", "loud" and "dirty" mining region), and the organisational setup of professional strategic destination management to create something new based on the mining heritage.

The Steirische Eisenstraße is a typical example of a mining region in decline: negative demographic trends in combination with outmigration of the younger population, industrial monostructure, a lack of tertiarisation and service orientation among the remaining population, and, last but not least, a consequently disadvantageous external image. The problem of overcoming a bad initial image is a challenge for tourism development in general, demanding a special strategy and much effort.

The most important natural advantage and conclusive basis for tourism in the Steirische Eisenstraße and surroundings is the vast, nearly untouched alpine landscape with spectacular limestone mountain ranges and many natural, torrent-like rivers. In stark contrast, these natural potentials are complemented by the unique, artificial silhouette of the Styrian Erzberg ("Iron Mountain"; see Fig. 1 in the Steirische Eisenstraße chapter in part II), which is the identity-forming symbol of the region of industrial development in Austria. Despite the variety of

natural potentials and a degree of supraregional awareness, tourism and connected infrastructure are underdeveloped in comparison to the high standard of Austrian tourism. What is more, the former omnipresence of mining and related industries have left behind a region outsiders generally perceive as "old", "grey", "loud" and "dirty". In order to overcome this bad image and to exploit existing potentials, professional and farsighted destination management is needed with a clear and specific strategic focus.

The key element in the planned destination strategy is "extreme and endurance sports for a broad mass with emphasis on the summer season". *Extreme* sports for a "broad mass" is an intentional contradiction. The typical target group for (real) extreme sports does not depend on and make use of well-managed and "artificial" tourism services together with a broad mass of other guests (importance of the individual component). The strategy therefore targets customers who want to be seen to be practicing extreme sports but are at best only at the beginners or less advanced level. Technically speaking, the focus actually lies on adventure and not on extreme sports. The endurance sports component can be seen as a complementary factor. For nearly all existing and planned sporting offers, endurance is a basic condition. Moreover, some of the conventional and "traditional" mountain sports (mountaineering, mountain-running, nordic-skiing, ski-hiking etc.) can be sold under a more emotional and modern umbrella.

However, the chosen strategic focus is not totally new to the region. Several promising projects and events have shown the potential of this development path. Incubator or main inspiration of the planned strategy is the Erzberg Rodeo (see Fig. 4). Staged in the active

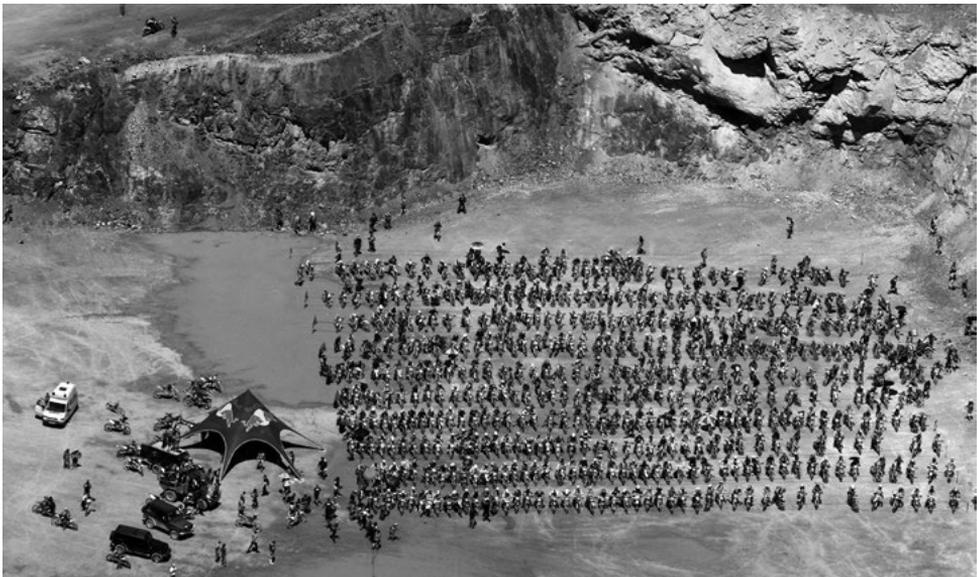


Fig. 4: Start of one of the races of the Erzberg Rodeo (Source: GEPA)

mining area, this “hard”, “rough”, “loud” and “dirty” event perfectly matches the existing mining image at the regional level. As a supporting development, revitalisation of the Formula 1 circuit in Spielberg (Red-Bull-Ring) incorporating a multi-optional motor sports centre should be mentioned. Major sponsorship by the biggest supporter of extreme and alternative sports worldwide has made this project an international attraction, fitting perfectly into the strategy described.

Climbing (from sports climbing to fixed rope climbing) and rafting (on the rivers Enns and Salza) are the other pillars of the destination strategy in the sphere of nature-related adventure sports. Steady growth in these sectors shows the high potential of these activities for future tourism products.

How is such a niche strategy to be implemented in a region with little experience and knowledge in tourism and with a generally low share of the service sector? The following system of measures and activities around a destination management company (DMC) as central organisation for coordinating tourism might be an appropriate approach to upgrading the external image of the region among potential clients (demand side) the internal image among residents (supply side).

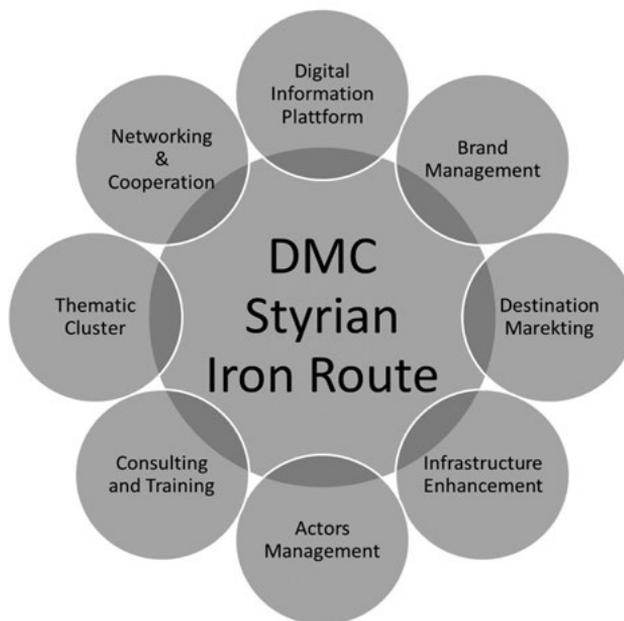


Fig. 5: Measures and activities for strategic management of the “Extreme and Endurance Sports Mekka Styrian Iron Route” (own contribution according to Tiffner 2011)

At the heart of this action plan is a strong and well-networked destination management company, driven by key regional tourism actors. The well-established LEADER-Network and existing tourism associations in the region could provide the beginnings of such an organisa-

tion. To develop tourism and improve the image of the region, this organisation would initially have to concentrate most importantly on professional destination marketing, including intensive destination branding. The trade mark of this development is the Styrian Erzberg ("Iron Mountain"), the only symbol with an international reputation (e. g. through the Erzberg Rodeo). With this symbol a "rough", "hard" and unique image can be generated in the eyes of potential guests. Another important task for destination marketing is a well-managed information strategy. Dominating factors for the target-group are the Internet and media and organisations specialising in extreme and/or adventure sports. Adventure sports normally need planning in advance (especially for the steadily growing short trips) and detailed spatial information. Instead of "slow" printed information material, a digital platform including an interactive geographical information system (GIS) including all necessary spatial information is needed to provide a planning basis as well as a "teaser" for the target group. Past experience has shown the importance of events (extreme sports, music related to target group etc.) for destination marketing and branding in the region. These therefore form another important pillar in marketing strategy.

In the strong competition between Austrian alpine destinations, a well-developed tourism infrastructure is an essential precondition for the success of a destination. This is the region's biggest weakness. High quality catering and accommodation are underdeveloped and need to be developed from scratch. The sports tourism infrastructure (climbing routes, running and mountain bike tracks, skiing facilities etc.) also has to be extended or built. Both tasks require a pro-active network of actors and both external and external investors. To achieve this, the DMC must engage in active actor to filter out and support the region's "very best". Existing actors in the tourism industry also have to be trained and consulted to meet the special needs of the target group, adventure tourists.

The demand-side image of a destination is normally not clearly delineated. As we have seen, the perception of the destination and its setting depends on the distance of the observer, the potential visitor, and his or her special interests and expectations. Close cooperation and cross advertising with surrounding destinations and attractions is therefore very important. This can produce a joint system of destinations (e. g. an "Upper Styrian destination cluster") composed of "micro-destinations" with thematic specialisations. Such a cluster could make use of synergies in various fields (advertising, aggregation of attractions, joint lobbying etc.)

Conclusion

What can be done for a declining mining region with a bad image, weak economic performance and inadequate service sector? Since the decline of mining and heavy industry in Europe and other developed countries, this question has mostly found no answer. Regions that have come to terms with the economic and social past have usually turned to tourism, often regar-

ded as a cure-all for structural problems. Nevertheless, very few mining regions succeed in this business, either economically or socially.

The transformation of an industrial society into full service society is a difficult and long-term process. Economic, social, and mental change calls for visionary concepts, a clear strategy and common goals. As we have seen, strategic destination management, assumed by a professional DMC, may be one option for an integrated solution, not only for tourism but also for regional management in general. Both a well-coordinated product supply chain and a competitive destination brand are needed. However, destination branding is inextricably linked to a destination's image as perceived and influenced by both the supply and demand side. Given the prevailing negative image of mining regions, which often inhibits tourism development, active image construction and evaluation is needed. Moreover the mining heritage cannot and should not be abandoned in transforming an image. A "new" image should take account of history and make positive use of the existing perceptions and awareness of the region. Image evaluation may reveal existing strengths and weaknesses, which need to be reconciled with the perception of residents and real conditions in order to avoid image gaps.

Since there is an abundance of such natural potentials in alpine regions, a special niche product has to be conspicuous if it is to stand out in the crowd of adventure destinations. We have presented the Styrian Erzberg and its surroundings as one potential destination for adventure and endurance sports tourism. At present the Styrian Erzberg is the destination's umbrella brand. Together with the "Erzberg-Rodeo", the internationally known sports event, it constitutes the unique selling proposition and central advertising attraction for reaching a small, short-stay, but international target group. Endurance sport as an additional specification may expand the potential target group and sharpen the destinations brand. This might attract people who prefer to combine the prime travel motive of adventure with positive and less risky side effects on health, lifestyle and prestige. Professional coordination and marketing for regional products along with coherent and positive transformation of the region's image (among both visitors and local residents) reflected by a distinctive brand may be one of the biggest challenges a DMC in a mining region has to tackle.

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The Role of Ecotourism and Geoheritage in the Spatial Development of Former Mining Regions

Introduction

When mining comes to a stop, the affected regions and settlements face many problems. One of the most important is an extremely poor public image. A number of authors in this volume have explored the difficult situation in former mining regions. However, it would be a mistake to see only the bad side of things, because these regions also offer a range of potentials. Some can be interpreted as natural or cultural heritage and can provide a basis for developing tourism. It is especially important because many consider that tourism offers the best way to escape economic depression and can bring quick economic development. This is theoretically possible, since tourism is now the most dynamically developing and competitive branch of business, which can bring big profits for regions with attractive tourism destinations. According to the World Tourism Organization (WTO), international tourism receipts were estimated at € 693 billion in 2010, up from € 610 billion in the previous year. Measured in real terms, growth in international tourism receipts is estimated at 4.7% for 2010; in absolute terms, receipts increased by € 83 billion (UNWTO Tourism Highlights 2011). This being the case, tourism is seen in many parts of the world as a kind of panacea that can solve regional economic problems at lightening speed. These notions are obviously excessive and by no means conducive to the development and enrichment of a region.

Former mining regions cannot be expected to attract the same numbers of tourists as ancient or medieval monuments or summer beaches. However, there are tourists interested in visiting regions where, not long before, they would have been greeted by pit-head frames and ropeways. This segment of tourism is referred to as ecotourism, which as we will be seeing in detail is a diverse activity based on various elements, one of which is the mining heritage. Ecotourism is closely associated with geotourism (Dowling 2011, see later fig. 1) which aims at exploring the geoheritage including that unearthed by mining. Ecotourism, geotourism and geoheritage conservation are often seen as key notions that can be instrumental in developing former mining regions. Ecotourism builds not only on landscape values but also on the geo- and cultural heritage. Many mines are part of the geoheritage and in this respect have doubtless left a significant cultural and industrial heritage, which can waken interest and become an attraction (Conlin & Jolliffe 2011; Dávid & Karancsi 2010).

In this paper we examine the links between these far-reaching factors. After summarizing the concept and characteristics of ecotourism, we analyze the potential of the mining heritage for developing ecotourism and how it can be built into development strategies in general and, as a case study, into strategies for developing the former Salgótarján mining region.

The Characteristics of Ecotourism

Over the past decade ecotourism has become a dynamically developing branch of tourism. According to FAO Media Centre (www.fao.org/news 2011), ecotourism is growing at a pace of more than 20% annually – two or three times faster than the tourism industry as a whole. As Marton-Lefèvre & Borges (in: Blanke & Chiesa 2011, 81) note, “Ecotourism ... is a burgeoning section of the fast-growing T&T [Travel & Tourism] sector that has a huge potential to act as a catalyst for business, biodiversity, and local development”. According to Honey (2008), ecotourism is the core economic development strategy in many countries of the “Third World.” Its importance has been demonstrated by the United Nations General Assembly resolution A/RES/53/200 proclaiming the year 2002 International Year of Ecotourism.

But what is ecotourism from an academic point of view? Like many other notions it has been much debated and defined in different ways (see Blamey, in Weaver 2001, 6). Also Garrod (in Garrod & Wilson 2003) cites “initial ten definitions of ecotourism.” The earliest is by Ceballos-Lascuráin (1987, 14): “Travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas”. The author of this definition who claims (1996, 21) to have coined the term “ecotourism” broadened the definition for the World Conservation Union (IUCN) Ecotourism Consultancy Programme (1993) as follows: “environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations” (Ceballos-Lascuráin 1996, 20). This is also the official definition recently adopted by the IUCN Commission on National Parks and Protected Areas (CNPPA).

According to The International Ecotourism Society (TIES), it is “responsible travel to natural areas which conserves the environment and improves the well-being of local people” (www.ecotourism.org 2011). Ross & Wall (1999) list five fundamental functions of ecotourism: conservation of natural areas; education; raising funds; quality tourism; and local participation. According to Buckley (1994), ecotourism is based on nature tourism which is sustainably managed, includes environmental education and supports conservation.

According to the World Tourism Organization (WTO), “Ecotourism is used to mean forms of tourism which have the following characteristics: 1. All nature-based forms of tourism in which

the main motivation of the tourists is the observation and appreciation of nature as well as the traditional cultures prevailing in natural areas. 2. It contains educational and interpretation features. 3. It is generally, but not exclusively organised by specialised tour operators for small groups. Service provider partners at the destinations tend to be small locally owned businesses. 4. It minimises negative impacts upon the natural and socio-cultural environment. 5. It supports the maintenance of natural areas which are used as ecotourism attractions by generating economic benefits for host communities, organisations and authorities managing natural areas with conservation purposes; providing alternative employment and income opportunities for local communities; increasing awareness towards the conservation of natural and cultural assets, both among locals and tourists" (The British Ecotourism Market 2001, 19).

The Québec declaration on ecotourism (2002) approved by the World Ecotourism Summit emphasizes that "ecotourism embraces the principles of sustainable tourism, concerning the economic, social and environmental impacts of tourism. It also embraces the following specific principles which distinguish it from the wider concept of sustainable tourism: contributes actively to the conservation of natural and cultural heritage; includes local and indigenous communities in its planning, development and operation, and contributing to their well-being; interprets the natural and cultural heritage of the destination to visitors; lends itself better to independent travellers, as well as to organized tours for small size groups".

Common to these definitions is that ecotourism is based on the attractiveness of nature; although natural beauties are significant attractions, they are in themselves marketable products only if some special natural heritage is also present. More therefore has to be offered. For instance, the built environment with its historical, industrial, architectural and ethnographic heritage is also part of this process. From an economic point of view, the cultural landscape with its cultural and other kinds of heritage and not only the natural landscape and its elements is part of the marketable "product," that is, of the attraction (Pénzes 2003). In brief, ecotourism is the simultaneous enjoyment and appreciation of the natural and cultural heritage. When offered together with tourism, they can contribute to the all-round development of a region that is either underdeveloped or in crisis. Ecotourism is a thriving economic enterprise in both developed and less developed countries around the world (Fennel 2008) and is not only beneficial but essential to both the environment and the economies of depressed regions (Whiteman 1996).

It is worth mentioning that ecotourism offers environmentally friendly services and connects with nature and landscape conservation. In general, ecotourists hike in nature in small groups and are mostly environmentalists. Apart from providing enjoyable experiences, well-organized ecotourism also helps people obtain a more profound knowledge of the natural environment and its endangered condition, teaching them to protect it. Hamale (2004, in: TIES Global Ecotourism Fact Sheet) confirms all these characteristics, listing the following attributes typical of ecotourists in Europe: experienced travellers; higher education; higher income bracket; age: middle-aged to elderly; opinion leaders; ask and tell their friends and colleagues about trip; and are the most important source of trip information.

Geoheritage is a special category within the natural and cultural heritage. Nature conservation has always somewhat neglected the conservation of the inanimate heritage in favour of the living world. Things have, however significantly improved over the past few decades: the conservation of geoheritage has become a major focus of attention in nature conservation. This is evidenced, for example, by the establishment of international organizations specializing in the conservation of the geoheritage, and the explosive spread of geoparks (see later). The “unit” of geoheritage is the geosite (Wimbledon 1996), which can be of either geological or geomorphic significance; for the latter, however, the term geomorphosite has been coined (Reynard et al. 2009). The geosites project was launched by the International Union of Geological Sciences (IUGS) in 1996, with support from UNESCO and headed by the European Association for the Conservation of the Geological Heritage (ProGEO, www.progeo.se) to establish a worldwide catalogue of sites of international importance (Barettino et al. 1999). Ecotourism is closely associated with geotourism interested in exploring such geoheritage. Ecotourism could thus broaden its scope through tourism based on the geoheritage, namely geotourism. It can be defined as follows (Newsome & Dowling 2010, 3): “Geotourism is a form of natural area tourism that specifically focuses on geology and landscape. It promotes tourism to geosites and the conservation of geodiversity and an understanding of earth sciences through appreciation and learning. This is achieved through independent visits to geological features, use of geotrails and view points, guided tours, geoactivities and patronage of geosite visitor centres”.

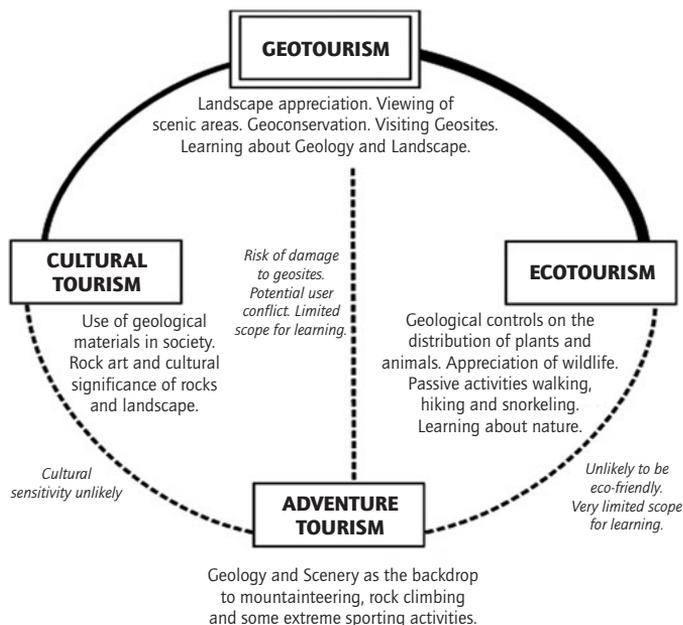


Fig. 1: The relationship between geotourism, ecotourism and other forms of tourism (Dowling 2011, after Newsome & Dowling 2010)

Fig. 1 shows the close connection between geo- and ecotourism (although the authors clearly restrict it to tourism aimed at the exploration of natural heritage while distinguishing it from cultural tourism with a geological angle). Eco- and geotourism are closely related but not identical notions: ecotourism often targets geotourism destinations, whereas in many cases geotourism uses the means of ecotourism for learning about destinations. Geoconservation and ecotourism are key concepts that can be conducive to spatial development in former mining regions. In the following section we look at the relationship between geoconservation and ecotourism and post-mining development.

The Potential of the Mining Heritage for the Development of Ecotourism

At first glance it seems contradictory to link ecotourism with the mining heritage because ecotourists are attracted to relatively undisturbed areas in nature. To the general public responsive to the problems of nature conservation, mining seems an especially harmful process, spoiling or destroying nature and endangering geodiversity (Bell & Donnelly 2006). This view is not wholly unfounded: the open-pit mining of certain minerals ravages entire regions. Typical examples are the open-pit mines in Lusatia (Germany) or the Sokolov region (Czech Republic), which are discussed in detail in this volume. Mountainside quarries scar the landscape with their bare walls and shapelessness. The landscape inherited from mining thus clearly bears witness to many negative impacts of human intervention. The factors linking ecotourism with the mining heritage include the following:

- a) A significant number of mines form an organic part of the geoheritage discussed earlier. Seeing all mines – especially quarries and open-pits – as scars on the landscape is a one-sided and biased attitude. For mining often provides access to special geoheritage, geological rarities, and spectacular formations. It introduces us to scientifically valuable heritage we would never see or know about if mining had not revealed them. A significant number of abandoned mines and quarries can therefore rightfully be defined as geosites.
- b) The rehabilitation of large open-pit mines means, in fact, the reconstruction of the landscape. The natural or artificial elements of landscapes shaped by mining can be destinations in the same way as other unique historical or cultural phenomena. What is more, by providing these elements with new functions, further tourist attractions can be created.
- c) The negative changes to the landscape begin to disappear with the termination of mining and related industry. Nature starts to recover abandoned quarries, recultivated and filled-in mining pits, and the polluted air begins to clear. These factors are important in the sense that even if they are not in themselves attractions, they help gradually dissipate the poor image, which has made tourism almost impossible. The more natural the landscape becomes, the more ecotourists will be attracted. Nevertheless, a landscape with abandoned mines

can also be attractive, as was shown by a survey of tourists investigating the role of the postcard as a tool in tourism marketing (Karancsi et al. 2009). A considerable proportion of respondents missed mines as a postcard motif.

- d) Mines can be valuable from other points of view, as well: for instance, as cultural historical heritage (from Roman times or the Middle Ages, or mines used for sacred purposes); as educational heritage (for instance, mines used for educational purposes with schoolchildren, university students, or future teachers); as recreational heritage (for example, salt mines for the treatment of asthma and TB); and last but not least, as aesthetic heritage (for instance, beauty of natural formations such as basalt columns; Fig. 2).

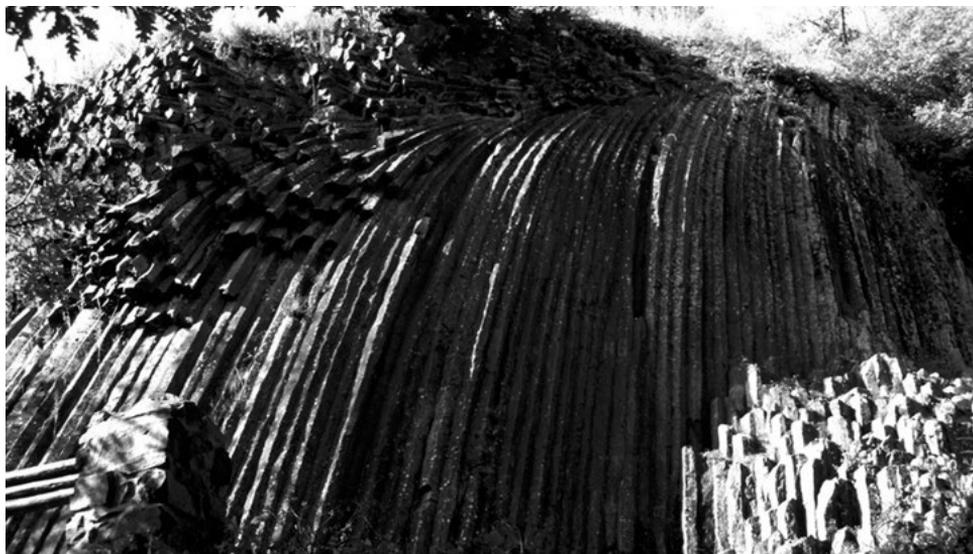


Fig. 2: Basalt columns at Somos-kő near Salgótarján (photo: Karancsi)

As we have seen in part I (overview) and Fig. 2 of that chapter, the cultural monuments of mining heritage fall into three groups. The first two comprise the built heritage of mining activity. This includes buildings connected with mining activities; infrastructure such as galleries (shafts, dip-heads, tunnels, etc.) and their entrances; pit-head frames, roads, railroads, ropeways, cable-railways and buildings, furnishings, the cables used for operating them; buildings erected when mining was still in operation. Also included are buildings connected with the everyday activities and private life of managers, office staff, and miners; for instance, management headquarters, miners' housing estates, housing estates and facilities for office staff, and other community buildings. An important "sub-group" is commemorative objects and places and monuments, which might well increase in number after mining has stopped. The third main group includes mining traditions and the institutions that cultivate and preserve them: cultural and friendly societies, organizations, etc. such as miner's bands, choirs, sports clubs;

and various events relating to mining. These are the factors that, in addition to the natural heritage as self-evident focus of ecotourism, can become useful determining or complementary elements in a development strategy for the mining heritage.

The mining heritage thus includes significant natural and landscape potentials as well as cultural potentials. Apart from the regional natural and aesthetic heritage, the buildings and monuments of the cultural and industrial heritage play a role as attractions especially for ecotourists, who are experienced travellers and much more intellectual and educated than the average (TIES Global Ecotourism Fact Sheet). Former mines and their surroundings are interesting attractions for responsive visitors, primarily as cultural and industrial monuments. Another characteristic feature is that the structures of the mining and industrial past are scattered around the region. After mine closure, the well-constructed infrastructure, which had not been intended for tourism, gradually went to ruin. This makes it difficult to reach such sites. They therefore tend to be destinations for hikers, who make up a significant body of ecotourists. According, for example, to the Hungarian Concept on National Ecotourism (2008) they generally set out to explore a region and its industrial and cultural monuments with a definite destination, preliminary plans, and information about the region. They are also interested in learning more, and therefore also welcome maps and written information material available on the spot. Roads and paths must be clearly marked. If a guide book deals with the mining past in detail, accurately marks the mining monuments worth visiting, adds more exciting descriptions to dull information, and ensures good orientation in the area, interest in the mining heritage will be considerably enhanced.

An outstanding option for combining ecotourism, geotourism, geoconservation and spatial development is the geopark. As defined by UNESCO, a geopark must have a considerable geoheritage providing an attractive basis for environmentally friendly tourism that promotes economic growth in the region. A geopark seeks to conserve significant geological features, explores and demonstrates methods of excellence in conservation, organizes activities and provides logistic support to communicate geoscientific knowledge and environmental concepts to the public. A geopark stimulates economic activity and sustainable development through geotourism, and local socio-economic development through the promotion of a quality label linked with the local natural heritage, and encourages the creation of local enterprises and cottage industries involved in geotourism and geoproducts (www.unesco.org).

Perspectives and Needs of Ecotourism Development in the Salgótarján Region

Our research on the Salgótarján region addressed the economic, environmental and social consequences of the cessation of mining and industrial activity. The most important aim was to identify and explore the problems caused by landscape modification and to outline practi-

cable solutions to the conflicts that have evolved (Drexler, Horváth & Karancsi 2003, Csüllög & Horváth 2010). The research is based on field work, investigating among other things the environmental factors of landscape utilization (geological and geomorphic processes, hydrology, value and condition of the geoheritage, the evolution and history of mining, etc.). The economic processes we examined – such as industrial plant closures, job losses, economic crisis, settlement structure problems, negative migration indices, and an overall strong decline in economic activity – had a significant impact on the environment (dumps and landfills for slag and other industrial waste, subsidence etc.) and on society (Csüllög & Horváth 2007, Horváth & Karancsi 2011). The condition of the landscape and the environment suggests that the first step towards tackling the problems is to establish new systems of landscape utilization (Szabó et al. 2010) that must necessarily also satisfy the economic expectations of the region.

As we have seen, ecotourism can be instrumental in resolving the crisis in former mining regions if it attracts a significant number of people from afar. This requires a complex, multi-directional, and well considered development strategy. In what follows we look at important potential components of such a strategy in the case of Salgótarján, the Hungarian project partner in the ReSource project. We draw on the work done by Hall (2000), who approaches tourism strategy development with reference to dimensions such as form (here: ecotourism), structure (actors involved in the process), and scope (here: local and regional).

Part II of this volume has provided an overview of Salgótarján, the mining history of the town and its post-mining potentials. The region is rich in landscape values (Horváth 1999) and therefore offers good perspectives for ecotourism. The strategic components include the Novohrad-Nógrád Geopark, which has given major impetus to tourism, especially ecotourism in the Salgótarján region since 2010 (Horváth & Csüllög 2011). Though geoparks are based on the local geoheritage, their fundamental interest lies not only in conserving and displaying this heritage but also in developing the region that relies on it.

a) A very important component is the development of the image and marketing of the town.

It is not by chance that the Salgótarján Tourism Destination Management Association (<http://www.salgotarjan-turizmus.hu/info/tdm/>) has declared its intention to make a major effort to repair the unfavourable local image and highlight the area's advantages and beauties. In the case of Salgótarján, however, it is particularly important and useful to include the mining heritage in enhancing the town's image. For this purpose, the mining heritage should be present in the day-to-day running of the town, in advertising flyers, in daily contact with the press and in relation to the programmes and events of professional and non-governmental organizations with similar aims; and of course in slogans, logos, publicity material, on websites, not to mention street signs. If the mining heritage were present on the Internet, e.g. on the Tourism Destination Management Association website or as supplement to the official municipal website, introducing the development, scenes, and contemporary monuments of coal mining, this would both enhance the local image and promote ecotourism.

An exhibition site "Mine Under Foot" recalling the mining traditions of the town and strengthening this "mining image" was installed in 2011 in the centre of Salgótarján. It is a man-made underground gallery with the figure and tools of a working miner (mine car, a burning acetylene lamp etc.) appropriately lit under unbreakable glass. In addition, the title "geopark" is of incredible significance from the point of view of image improvement and marketing possibilities as well.

- b) The second component is the planning of thematic tours addressing the historical and industrial past including the mining heritage. These plans produced by the municipality, the Tourism Destination Management Association, the Nógrád-Novohrad Geopark, and the Bükk National Park Directorate embrace the natural, cultural and industrial sights of the mining heritage worth visiting for ecotourists (in close cooperation between nature conservation and tourism organizations, because many abandoned mines and quarries in the Salgótarján region are situated in the Karancs-Medves Landscape Protection Area). Study trails for enthusiastic tourists are a particularly significant step forward and the high quality of explanatory signs is laudable from an educational point of view (Drexler et al. 2003). The so-called "Miner's Tour" to interesting sites in the region is to be expanded into a thematic tour around the town, exploring the remaining natural heritage in its entirety together with the characteristic human impacts on the landscape reflecting the mining past. In this process, the entrance section of the Gusztáv Shaft at Rónabánya, which is quite well preserved, will be reopened. Hopefully the István Shaft (Fig. 3) at Salgóbánya, presently managed by the waterworks, will also be opened to visitors. (Rónabánya and Salgóbánya



Fig. 3: Entrance of István Shaft in Salgóbánya (photo: Horváth)

belong administratively to Salgótarján.) After restoration to make them accessible and provided with signboards, the miner's memorial at Eresztvény and the old miner's cemetery at Inászó (both on the outskirts), could be included in the thematic tour, as well. A thematic "Picturesque Trail" (Karancsi & Katona 2009) has also been planned between Salgó Castle and Somoskő Castle, embracing spectacular landscape.

c) The third component is the concrete utilization of the natural and cultural potentials of the mining heritage for ecotourism. Typical of ecotourism sites is Mt. Szilvás-kő to the south of Rónabánya. On the surface of the mountain, basalt that welled up some million years ago was deposited on Miocene sedimentary rocks containing coal in seams of various thickness. It is these coal seams that had made Salgótarján such an important mining town in its heyday. Basalt had also been mined, leaving wonderful basalt columns to be admired in one of the abandoned mines. However, the true tourist attraction is a unique and very rare consequence of undermining. Coal was extracted from under the basalt in several phases, especially in the early 20th century. When mining stopped, all roof support was removed. As a result, the mines gradually caved in from as early as the 1920s. Huge cracks developed in the overlying basalt at Szilvás-kő, and many meters of chasms opened (Fig. 4). Walking their length is a special experience, heightened by long and maze-like pseudocaves that have formed among the broken blocks of stone in the depths. These special features, because they are so difficult of access, are attractive to ecotourists and adventure tourists alike. The popularization of the geoheritage can be promoted by restoring and largely expanding the study trails built and managed by the Bükk National Park, as well as constructing new study trails addressing certain geological phenomena and mining activities.



Fig. 4: The chasm at Szilvás-kő (photo: Karancsi)

Rónabánya village is not only a starting point for ecotourism programmes and thematic tours but also itself is a cultural-industrial monument. Its small, simple houses with only one room and kitchen were designed with geometrical accuracy, producing a uniform streetscape (Fig. 5). This housing estate, which is in rather bad condition, should be restored to convert the houses into tourist accommodation and former public buildings and venues of community life into exhibition space (public ovens, schools); it is an ideal starting point for thematic tours of the mining and other heritage in the region (Rónabánya is in easy reach of Salgótarján by public transport). It is the duty of local authorities to preserve the character of the former miners' estate by introducing uniform architectural regulations. The reconstruction of the old miners' estate in Salgótarján could serve the same purpose, as it could be combined with restoration of the so-called "Clerk's Casino", which was the scene of social life in the past. This spectacular though ruined building is suitable for housing an exhibition informing tourists about the history of landscape use (plans for the exhibition have already been made).



Fig. 5: Rónabánya, a typical miners' colony near Salgótarján (photo: Horváth)

d) The fourth component is planning recreational facilities. Ideas include creating a popular destination to attract families and young people, involving reconstruction of the first narrow-gauge industrial cog-railway between Salgóbanya and Salgótarján that opened in 1881 (Fig. 6), which was demolished when coal and basalt mining ceased. There are plans to rebuild 4.7 km of the route with 4 stations for exclusively ecotourism purposes as part of the town development project. The technical plans have already been made but no funds are yet available. The outskirts of the town had once been criss-crossed by industrial

railway lines; the remaining tracks can be used as hiking and cycle routes, in other words, for new ecotourism purposes. They will be even more attractive if viaducts and tunnels of former railway lines are included.

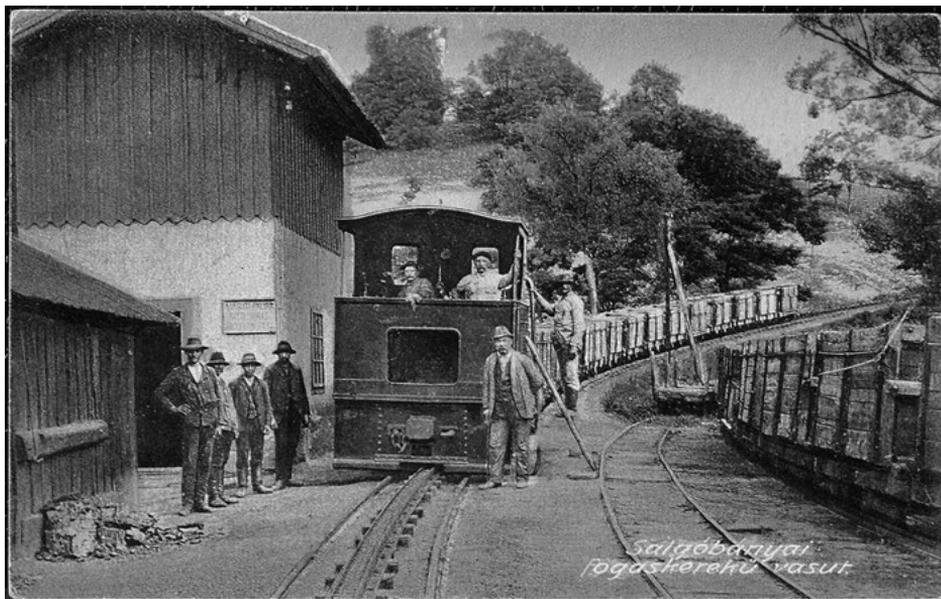


Fig. 6: The former cog-railway between Salgóbánya and Salgótarján (postcard, 1932; collection of S. Póczos)

Programmes can be attractive not only for ecotourists interested in culture but also for those looking only for recreation. These programmes can include building and expanding sports facilities, not least improving conditions for winter sports (by developing the Szilvás-kő ski runs), as well as restoring the extremely poor bathing facilities. All these are important not only to attract tourists, but also to provide prospects for the local unemployed. Rebuilding town centres with pedestrian zones also serves this purpose.

- e) The fifth component is improving the ecotourism infrastructure, still inadequately developed. Providing appropriate accommodation is essential in developing the tourism of a region. The barely 700 hundred registered beds are insufficient and there are no better quality hotels. At present, only the most modest and devoted hiking ecotourists can be put up. According to Lindsay (2003) ecotourists typically stay with local families, or at small, environmentally friendly hotels termed ecolodges. It is therefore important to increase the number of standard private beds. This is also demanded by the Tourism Destination Management Association in their efforts to increase the number of overnight stays. Another important infrastructural element in developing tourism is good accessibility. The town has to improve long-distance transport to match good local transport. Although

highway 21 is only partly up to standard, the town is relatively easily accessible by car or bus; but train transport is not satisfactory (which is not the town's fault). More frequent trains and better standards require political support and decisions. On the other hand, a new secure route for cyclists –an important segment of ecotourism – was inaugurated in 2011 and there are several cycle trails managed by the Tourism Destination Management Association and the Bükk National Park Directorate. Luckily, most of these trails touch on mining heritage and other geoheritage sites.

Conclusion

The basic idea of the ReSource project is that ecological and cultural potentials can become the key element in a strategy for developing former mining regions (see part I). These plans can promote the renewal of regions in a dire social and economic state after abandoning mining, increase their competitiveness and utilization of the infrastructure and exploitation of the mining heritage in a new direction. Broadly interpreted, ecotourism is the enjoyment and appreciation of the natural and cultural heritage; it builds on both ecological and cultural potentials. This segment therefore opens the way to planning a market for complex tourist services and their utilization. Ecotourism can harmonize the demands of geoconservation, landscape preservation, and spatial development under proper controlling and management. However, in developing tourism products the ecological "weight-bearing" capacity of the given landscape has to be taken into consideration; it is thus incompatible with mass tourism and short-term profit making. The mining heritage provides good destinations for ecotourism, and their utilization harmonizes with the aims of the geopark idea, which can, moreover be based on it, for most former mining sites are part of the geoheritage and are suitable for presenting it. In sum, geoparks are excellent localities and tools for ecotourism.

The tasks are obvious, but government and local authorities, scientific experts, entrepreneurs, and local patriots need to join forces to realize a triple aim: conservation of the geological heritage, sustainable development of the region, and high standard (eco)tourism. Nevertheless, though exploitation of the mining heritage is an important task that ecotourism can promote, Conlin & Jolliffe (2011) point out that transforming abandoned mines into attractions can only contribute to the development of tourism as an alternate economic activity; it will never totally replace the economic benefits that mining brought. Ecotourism (built partly on the mining heritage) can nevertheless help escape a vicious circle: considerable working capital can flow into the tourist industry if the demand for services grows, but tourism in former mining regions with a bad image will grow only if the region can provide a wide range of services and proper information for potential tourists. The expansion and development of tourism facilities can be effective and can contribute to the development of the whole region only if is coupled with marketing strategy and intensive promotion.

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**Part V:
Perspectives
and Possibilities**

Reflection on Strategic Options for Post-Mining Development

The preceding chapters of this book have looked at the general situation of Central European post-mining regions at the beginning of the 21st century, focusing on regions characterised by small and medium-sized towns. The analysis has shown the economic, social, ecological, and cultural challenges that structural change brings to all post-mining regions in both Western and Eastern Europe. At the heart of our inquiry has been the role of post-mining potentials in the future development of such regions, whether and how these potentials influence regional development and how they are embedded in local and multi-level development processes.

This final part reflects on the findings of the individual case studies, discussing general perspectives and possibilities for post-mining regions in Europe on the basis of regional empirical research and general considerations of post-mining development, and offering concluding recommendations for European, national, regional and local policy. It argues that the integration of the natural and cultural potentials of former mining industries in urban and regional development strategies can improve regeneration, especially when taken into account in the out-phasing period of mining. There is no panacea, but certain aspects are clearly essential to any effort to develop post-mining regions on the basis of post-mining potentials. The recommendations offered draw on the discussion of strategy building below. First, however, we wrap up the results from the preceding chapters to set the framework.

Part I reviews the scientific debate on structural change in post-mining regions, discussing the problems and potentials that arise when mining activities cease in a Central European context. Much of this debate has reflected the problems and challenges facing the regions dealt with in this book. The academic discussions on "system transformation", "strategy making", "heritage and tourism", "participation" and "modernization" find abundant evidence in the following chapters, not least in the overlapping challenges these regions have to address.

Part II takes a detailed look at the situation of seven post-mining regions at different stages of development. All contributions stress that mining regions are disadvantaged in many ways because of structural change caused by mine closure or downsizing. This is confirmed by a range of negative economic, ecological and social indicators. These regions have suffered sometimes rapid, sometimes gradual, heavy job losses even if they are home to other industries or services. This situation has persistently produced unemployment rates higher and GDP rates lower than the national average. The often problematic environmental legacies of the mining industry also play an important role, especially when former mining sites have not been rehabilitated (large

brown-field sites; unstable surfaces; air, water and soil pollution). Adverse economic development is coupled with an enduring "black" image. The two factors often cause more or less pronounced negative demographic developments, with the young and skilled population leaving the area. All these issues are particularly problematic for small and medium-sized towns, which lack the financial and organisational capacities to cope with such challenges.

The impact of these structural changes on mining regions clearly differs from case to case, owing mainly to local factors, such as infrastructure (e.g. universities), other locational factors (e.g. alternative economic sectors), the level of national government involvement (e.g. subsidies, special regional development funds), and the general state of economic transformation (e.g. imminent or long past mine closure). Contributions generally underline differences in political and economic framework conditions between mining industries and rehabilitation approaches, specifically between Western and former Eastern bloc countries. Research has also shown that the challenges for such regions persist long after the last mine has closed down and are not determined by type of mining that has taken place. Basically all regions therefore face the same kinds of problem in coping with the transition from mining to post-mining. Above all, new visions are needed in times of great economic and social challenge.

The absence of strong endogenous growth poles, especially in regions with small and medium-sized towns, makes it difficult to attract outside investment. The utilization of endogenous growth potentials, notably post-mining potentials, is one viable strategic vision for regional development. Research has shown that many Central European mining regions have sought to exploit the potentials inherited from the mining industry to revive development, often because other opportunities fail to materialise.

Part III gives a comprehensive overview of the diversity of post-mining potentials and their utilization. The analysis shows that there is a wide range of mining potentials already in use across Central Europe, with almost all former mining regions having recognized and utilized one or more of such potentials, albeit with differing intensity. Often determined by local factors, i.e. existing infrastructure or expertise, regions have tried to develop projects based on all the types of post-mining potential identified in chapter 1 of this book:

—*Cultural potentials* are often used in tourism, when mining traditions (e.g. "miner's day") or infrastructure (mining museums) are incorporated into wider tourism marketing. Using post-mining landscapes for tourism or leisure activities can also improve the overall image of a region, for example reclaiming open-cast sites for leisure facilities to counter the "black image" of such areas. Some projects also involve the re-use of mining buildings as offices or exhibition space.

—*Natural potentials* are also exploited in various ways, for example, producing geothermal energy or cultivating biomass on mine dumps in active pursuit of a regional strategy in the fast-growing renewable energy sector. Such networks provide post-mining regions with the knowledge and investment opportunities in an innovative, burgeoning market that is generally lacking in post-mining regions.

These findings and the wide-ranging examples in place emphasize the possibility and importance of joint learning, of post-mining regions exchanging knowledge and experience on exploiting their potentials. A platform for "good practice" examples has been established within the ReSource project itself as an internet knowledge base (www.resource-ce.eu)

In **Part IV** the authors analyze the concrete challenges and potentials in case-study regions. The six contributions deal with potentials in specific ways, highlighting the various challenges of mine closure and how regions react to the ensuing changes.

Antonín Vaishar, Zdeňka Lipovská and Milada Šťastná (Brno) investigate the specific role of small towns (and their potentials) in post-mining regions under changing framework conditions, discussing the development alternatives for small towns. While some prove unable to sustain their central functions and strengthen their position in the settlement system, others risk decline and shrinkage, particularly where access is poor, the infrastructure is deficient, and jobs are lacking outside the mining sector.

In two German case studies, Jörn Harfst, Peter Wirth and Gerd Lintz (Dresden) discuss the importance of local and regional policy in steering and mastering change. They address the use of old mining potentials as a specific problem of regional capacity building. Sylwia Dołzbłasz (Wrocław) concentrates on the role of local actors in the development of post-mining municipalities. The Slovenian contribution by Naja Marot and Barbara Černič Mali (Ljubljana) looks at the important aspect of participation in development processes, especially the involvement of youth. The authors explore the challenges to involving local groups in decision making and the creation of new perspectives in former mining regions.

Another set of contributions examines the role of post-mining potentials in developing tourism in former mining regions. The place of the mining heritage and landscape protection in an integrated tourism strategy in Austria and Hungary are discussed in efforts to revise regional images and bolster the regional economy. Judith Pizzera and David Osebik (Graz) explore the specific requirements of touristic marketing, while Gergely Horváth and Gábor Csüllög (Budapest) deal with ecotourism and geoheritage as driving forces in the spatial development of former mining regions.

All in all, the contributions in this book underline the complex challenges post-mining regions generally face when industrial production ceases and new perspectives have to be created. This concluding part draws on the findings presented in this book and wider research under the ReSource project in discussing more generalised strategic options for the development of mining regions and developing recommendations for policy at the European, national, regional and local levels.

Challenges to Development in Post-Mining Regions

Research underlines the relevance of the “old” question of how to give mining cities or regions a viable future after mining activities have ceased. This book also highlights certain new “twists” to development in post-mining regions at the beginning of the 21st century. The examples presented show that the problem-solving concepts of the 1980s and 1990s have little to offer today, due particularly to considerable changes in economic and political framework conditions. European mining regions have had to face continuous changes, which have tended to accelerate in recent decades. They have included integration in the world market on various levels, for example through the European common market, as well as the incorporation of former state-capitalist regimes in market-led systems. This has brought greater competition, which along with cutbacks in state subsidies, has made many European mining industries unprofitable and led to the often rapid cessation of activities (Steiner 2003; Müller et al. 2005).

In the 1970s and 80s, European mining regions could hope for active state intervention in structural change. At that time, the effects of mine closure in planned-economy countries were counteracted by establishing new economic sectors in affected regions. In Western Europe generous regional development programmes were often set up by national governments. But the strong growth rates still attained in the 1980s, at least by many Western European regions, have given way to more uneven growth patterns across Europe (Wissen 2000). Falling growth rates, the mixed results of many restructuring initiatives and a general shift in the political agenda mean that government support for affected regions has become less focused and more competitive. While the beginning of the 1990s still saw special EU programmes for old industrial regions such as RECHAR and RESIDER¹, such direct, sectoral policy approaches have played less of a role since the late 1990s. National and EU policy now focus strongly on growth potentials in existing economic development hot spots. This has relegated many old industrial and mining regions, especially when outside bigger agglomerations, to the bottom of the political agenda. Today, as the studies in this book underline, such areas receive little special funding and face severe competition from other underdeveloped regions (such as rural areas) for support from European funds (e.g. ERDF). Regions dominated by small and medium-sized towns, in particular, have to compete for funding and stretch already limited resources.

Research has also underlined the problems in mining regions themselves. Internal factors often hamper the development of coherent and comprehensive strategies to counter the outcomes of structural change. Examples in this book show often narrow, rigid and hierarchically organised power structures in key actors and networks, often composed of stakeholders connected with defunct mining industries. Such key actors often hold considerable power, for

1 The programmes supported the restructuring of European coal and steel regions from 1989 to 1999.

example through the ownership of former mining lands or professional links with remaining industries. Another important finding is that still active mining can be a stumbling block for new impulses and reorientation. The impact of mining on regional development and its underlying strategies is all-embracing. Mining and related industries often constitute the most important economic, social and cultural matrix for society as a whole. Creative plans and approaches are often seen as conflicting with mining, traditions, and the predominant role of the hierarchical actor network. Many regions suffer from classical "lock-in" (Grabher 1993; Wirth & Lintz 2007; Zimmermann et al. 2007).

Despite the need for concerted action and coherent strategy building on various political and administrative levels, collaboration is hampered in many regions by insufficient forms of cooperation, organisation, and funding. Such problems can arise from (political) disagreement within mining regions, as well as from unclear, changing or conflicting administrative structures, responsibilities and interests between different administrative levels and overall political goals pursued on various policy levels. The result is often a lack of coherent strategic visions, options and support, which can, for example, hinder the successful application of investment and funding.

Overall, the lack of European and national support, inconsistent forms of multi-level governance and local "lock-in" can obstruct innovative and successful forms of regional management involving new ways of using post-mining potentials to promote development. Therefore it is argued here that post-mining regions need to be generally strengthened, especially when small and medium-sized towns predominate. This requires capacities to be enhanced, notably through sound new conceptual, organisational and managerial approaches for and in the region. These measures should include holistic urban and regional development concepts, participative and integrative governance networks, and transparent responsibilities and decision-making.

The Role of Post-Mining Potentials in Mining Regions

As this book shows, there are many options for development in post-mining regions. Many such places, for instance, are not in a negative growth environment. Among the elements research has identified as favourable to regional development are positive location factors (e.g., good transport connections and social infrastructure) and existing industrial knowledge and skills, especially where specialised core units have survived structural change in the mining industry. These factors could be stepping stones for investment in other industrial sectors based on what remains of the region's old growth path. As far as job creation is concerned, industrial production is probably the only sector that could offer new employment opportunities on a larger scale in such regions simply by exploiting available workforce skills. Niche-positioning post-mining regions as new industrial locations could provide new impulses for such traditional industries.

To attain these aims, however, research networks between enterprises and educational institutions (i.e. colleges and universities) as well as training and entrepreneurship programmes for the workforce would be essential. The case studies presented in this book and the framework conditions described suggest that such targeted (state-led) intervention is unlikely in the present situation. The lack of resources and power in regions marked by small and medium-sized towns denies them the development of innovative endogenous development paths based on research facilities and growth industries. Regional actors therefore generally adopt the "realistic" option of small-scale interventions that can be steered locally and offer some kind of economic and marketing value but mostly fail to solve the problem as a whole.

This book has also focused on the role of post-mining potentials in modernisation processes. The case studies presented indicate that the integration of the natural and cultural potentials of mining in urban and regional development strategies for former mining regions can improve regeneration, especially where they are taken into account already during the out-phasing of mining. Successful concepts clearly also have to combine ecological and economic development. This is particularly true given the overall state of Central European mining regions and two of the most pressing issues for future development: image change and economic development, both involving the rehabilitation of past mining sites and environmental problems. The utilization of post-mining potentials embraces both aspects equally and is therefore a viable development option. Moreover, mining traditions are often deeply rooted in the regional identity. Exploiting post-mining potentials can therefore also be a way to strengthen identity in regions where, after the loss of jobs and economic problems, old identities are under pressure. They might enhance attachment to the area and counter outmigration tendencies and the concomitant brain drain. Post-mining potentials therefore offer new options for development in these regions without denying the past.

The case studies in this book have highlighted two especially common fields of action in the use of post-mining potentials, each with its specific advantages and problems:

a) Tourism

As the case studies indicate, the touristic use of cultural and natural potentials plays an important role in former mining regions, underlining the importance of heritage and traditions connected to past mining activities. Regions can use the well-known funding schemes under the European Union's ERDF programme. Nevertheless, the sustainable utilization of tourism potentials faces some problems: One is the "black" image of mining regions as places of industrial production, a disadvantage in a highly competitive tourism market strongly dependent on image and perceptions. The necessary tourism infrastructure is also simply lacking, and regional attitudes towards service provision and quality in tourism are not yet sufficiently developed. On a more practical level, the exploitation of post-mining potentials for tourism often runs up against legal difficulties such as property rights, insurance issues or conflicts of interests with actors outside tourism, which hamper their full valorisation. Overall, tourism

is an option for post-mining regions, but is nevertheless one of the most challenging choices, as it demands cooperation and coordination among several actors.

b) Energy

This field can enhance regional identities and allows the direct utilization of post-mining potentials, such as mine land for biomass production, mine shafts and galleries for geothermal energy, photovoltaic plants on former mining areas, or even flooded pits for hydroelectric power production. It also requires regional know-how from the mining business and improving the regional image by giving a "green" touch to formerly "black" landscapes. Activities in this sector bring a region into contact with a highly innovative industrial sector of growing economic importance. Nevertheless energetic potentials are somewhat more difficult to realise for local actors. Projects usually require more extensive funding and do not fit easily into the EU ERDF programme, a decisive tool for most regional actors. Renewable and conventional energies depend strongly on legal framework conditions, on national funding (subsidies), and on local conditions (property rights), demanding specific knowledge and strong involvement by regional and local actors.

The book has shown that in some Central European cases post-mining potentials can indeed play a major role in regional development. This often depends on particularly unique or spectacular examples of the mining heritage – not least UNESCO world heritage sites (i.e. Wieliczka Mine in Poland or Zeche Zollverein in Germany). Nevertheless such examples are the exception. In most regions, post-mining potentials can play only a supporting role in a broader regional development strategy. Their importance varies with the availability of other economic resources for regional development (i.e. industry, tourism etc.), but in the short term they generally have an only limited impact on employment. Nevertheless, dealing with post-mining potentials can connect "old" and "new" aspects of regional development. Identifying and exploiting post-mining potentials can help break lock-in effects by involving new actors in the discussion on regional development and build the necessary local and regional capacities for handling the consequences of structural change. Such projects can also raise awareness among outside actors of the problems and opportunities of post-mining regions.

Embedding Post-Mining Potentials in Regional Development Strategies

The findings presented in this book show numerous options for developing former mining regions through post-mining potentials. Local actors have a wide choice for shaping perspectives when mining has ceased in a region. The core question is how to organise such a complex process.

The variety of possibilities makes a coherent regional approach to strategy building almost a necessity; the adoption of such an approach should be the first step for regions undergoing dramatic change (Healey 1997). In the case of former mining regions this means ideally starting even before the last mine has closed down. With only limited resources at hand it is essential to carefully assess the options that best fit local needs and framework conditions. This underlines the need for a broad-based and coherent strategy. Without such coordinated effort, the viable, long-term utilization contributing meaningfully to regional development will be hard to achieve. The examples presented demonstrate that local and regional key actors have to be integrated in strategy development; without them coherent planning and implementation will prove difficult. A broad base of local actors (civil society, policy, economy, administration) should be integrated into the process to make it inclusive and reflect a common understanding within the region. It is therefore important to create regional arenas where various actors can participate in decision making (see also Bryson & Crosby 1993). They can take the form of round tables, regional conferences, LEADER action groups, and so on. Such platforms are important facilitators not only for sharing information and discussing the prospects of the region, but also for discovering synergies between existing or planned projects. As research in this book has shown, each region has to create its own kind of network; the form and structure (informal or formal, hierarchical or non-hierarchical structure, public or public-private led) will often depend on local settings and configurations. There is hence no overall "best practice" for managing broad-based and coherent strategy building, but whether projects can be pursued strategically and in the long term depends on local framework conditions and specific local actor networks.

Strategy building and the valorisation of post-mining potentials in former mining regions cannot be discussed without local actors or without interaction with other policy levels. Awareness of the specific problems of mining regions on other policy levels, e.g. through codification in state development programmes, setting up specific management units, or direct financial support for rehabilitation and urban development, can positively influence the conditions under which strategic development takes place. Conversely, a lack of support from other policy levels (i.e. national or EU) can hamper strategy building and the implementation of projects, given the often very limited financial resources of such regions. The inclusion and support of supra-regional actors and institutions remain crucial factors, for example, research or regional development agencies, national government and the EU.

This brings us to one of the core questions in regional policy: How do the higher levels (state and EU) regulate disparities between regions? Expert opinions range from regional balance policy to growth fundamentalism, with the former generally contradicting regional growth concepts (e.g. Rey & Janikas 2005). This places the discussion on structural change in mining regions under the heading of European cohesion policy which is designed to reduce differences in wealth between rich and the poor regions in Europe (Molle 2007, 3). Since most post-mining regions can be described as disadvantaged, they depend not only on EU

structural funds but also on national support programmes. However, the focus of European cohesion policy has also changed decisively. Since 2007 investment has focused mainly on economic modernisation, that is to say on research and development, innovation, entrepreneurship, human capital, information, and communication technologies (Molle 2007, xii). For mining regions this means emphasizing a double strategy: firstly to use balance policy instruments to maintain social, cultural, and ecological living conditions, secondly to participate in international competition for growth and jobs. This remains a major challenge.

Conclusion – Towards a Practitioner's Guide

This final chapter has focused on the role of mining legacies in the modernisation of post-mining regions. The case-studies in the book have shown that the integration of natural and cultural potentials of mining in urban and regional development strategies can clearly improve regeneration, especially when combining ecological and economic aspects of development. Such efforts address two of the most pressing challenges in Central European post-mining regions: image change and economic development, both closely interconnected with the rehabilitation of past mining sites and environmental problems. The utilization of post-mining potentials embraces both aspects equally and is therefore a viable development option.

Turning such post-mining potentials into real regional assets can be interpreted as strategy development on both the local and regional levels (Albrechts et al. 2003). Initiating a sound and broad-based process for deciding what potentials to exploit and how and with whom is often one of the few ways forward in regions caught in the vicious circle of unemployment, out-migration and environmental damages. The background research in this book has shown that for local and regional actors the successful utilization of post-mining potentials in former mining regions is a complex and often challenging process, for which they often initially lack the necessary financial and organisational capacities. The findings presented here and the ReSource project as a whole therefore argue strongly that greater attention needs to be paid to developing participative/integrative strategy on the local and regional level. Research has shown that coherent regional development strategies should fulfil three basic requirements. They should

- reflect broadly based, transparent consensus among several stakeholder groups on the subject matter and objectives of redevelopment
- clearly state what is "to be" and "not to be"
- prioritize efforts and projects. The coordination and steering of these initiatives are then to be managed by the actors and institutions involved.

However, building on sound strategic development itself will not solve the dilemma of mining regions, which often lack the resources and power to develop an innovative endogenous development path based on research facilities, innovation and growth industries. Nevertheless it can enhance local and regional cooperation, which might in turn enhance local capacities

to generate new ideas and action for development. Arrangements have to be found on the local and regional levels for developing and facilitating local changes through networking, planning and the integration of actors. Here the practical side of strategy development is addressed by creating knowledge and raising awareness of post-mining problems and potentials.

The attention of other levels of governance also needs to be drawn to the problems such regions face in mastering structural change and creating new development paths (Halkier et al. 2000). This book has underlined the importance of multi-level approaches in revitalising old mining regions, especially in the form of coherent strategy development. Case studies have shown that European and national governance levels should set the framework conditions for successfully developing post-mining regions, for example by providing funding and through regulatory policy (i.e. energy policy, legal status of brown field use). The rehabilitation of former mining land, in particular, remains an open issue in most post-mining areas and is a major obstacle to investment. Stable framework conditions, especially for brown field rehabilitation, are necessary to provide a long-term financial background for any future development.

Overall, and as the project has demonstrated, research stresses nine factors important for the successful strategic utilization of post-mining potentials (see Fig. 1).

Characteristics	Factors of success
Cross-cutting issue	1 "Mainstreaming": Integration of post-mining potentials in relevant planning processes and development strategies
	2 Establishment of (multilevel) governance structures und interconnection of different actors
	3 Interconnection with sectoral strategies, structures and aims (i.e. tourism, energy sector)
Variety of actors	4 Systematic inclusion of relevant stakeholders
Long-term view	5 Continuity in planning and implementation. Regular updating of aims, strategies and plans
Acting under uncertainty/constraints	6 Creating an information base for sustainable planning
	7 Exchange and cooperation between science and practitioners to enable knowledge transfer
Local implementation in multi-level systems	8 Support of local level, as this is the level of implementation
	9 Reference to the international dimension of post-mining potentials and problems (funding, knowledge transfer)

Fig. 1: Success factors for strategy implementation in post-mining regions (Harfst et al. 2011)

The contributions in this book have argued for the utilization of post-mining potentials as a cross-cutting issue. The necessary measures demand a holistic and integrative approach, which includes multi-level governance structures, the integration of various actors, and synergies with other policy fields (i.e. tourism or energy policy). Only by such a complex approach can the relevant political actors on different levels be addressed. Support from other governance

levels has to be secured by constant awareness raising and lobbying, stressing the universal nature of the problems shared by post-mining regions. The media play an important role and have to be invited to report on successful activities in mining region and cities. This systematic inclusion of stakeholders through new network structures can enhance regional capabilities and contribute knowledge and ideas on development. Knowledge transfer among practitioners and scholars is specially valuable, which underlines the importance of universities and scientific institutes in dealing with the development of former mining regions. This can encourage young academics from mining regions or towns to take action in the regional development field in their home regions to open up new perspectives for valorising local potentials. This resource should be taken into account along with the other potentials discussed in the book. People who work for their own region have the advantage of knowledge about soft frameworks such as mentality, behaviours etc.

Overall results from this book show that post-mining regions have to face complex challenges after mine closure. Such communities, especially in regions with small and medium-sized towns, often have to act under various constraints (financial, organisational, and political). More focused action is needed by local actors and their networks to overcome these structural weaknesses and create new development options for post-mining communities. This will encourage European and national actors to play a more active role in setting the necessary framework conditions for post-mining regions to develop endogenous potentials, for example the mining heritage. Multi-level approaches are also needed to help and enable local actors to develop their own strategies and take appropriate action.

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A Short Summary of this Volume

ENGLISH

A Short Summary of this Volume

Post-Mining Regions in Central Europe – Problems, Potentials, Possibilities

This volume focuses on the problems, potentials, and perspectives of former mining regions in Central Europe. It describes their situation at the beginning of the 21st century and investigates the options for developing such regions. Special attention is given to regions with small and medium-sized towns, which are often subject to specific framework conditions and development options.

The main topic under investigation is so-called post-mining potentials and the possibilities they offer for urban and regional regeneration. Often the legacies of mining are perceived as problems. But many can also be interpreted as opportunities to be taken. They can be natural potentials like the post-mining landscape, warm mine water, or abandoned mine dumps, or cultural potentials like infrastructure and buildings, as well as miners' traditions and customs. The basic proposition is that the valorisation of these potentials for recreation, heritage and energy supply can contribute considerably to sustainable development after the end of mining.

The first part introduces the discussion on change in mining regions and provides an overview of the state of knowledge. It is on this basis that the concept of the volume is developed: the recognition and valorisation of post-mining potentials by regional actors. The second part examines seven selected mining regions. Structural and institutional framework conditions are described, as well as actor constellations and development approaches in the regions. The third part focuses on good practice examples for the use of post-mining potentials in Central Europe. A range of projects and centres of knowledge is introduced representing the status quo of post-mining development. In part four specific aspects of the change of post-mining towns and regions are explored in detail. Topics are functional change in small mining towns, institutional capacity building, the role of youth in the process of functional change, as well as specific perspectives of post-mining regions like re-industrialisation, ecotourism and adventure tourism. Finally, policy recommendations at several levels (local, regional, national, Europe) are provided for attaining efficient and adequate support for the redevelopment of former mining regions.

The scientific results presented emerged from the project "ReSource – Utilisation of post-mining potentials for sustainable re-development in Central European mining cities and regions", carried out from 2009 to 2012 in the framework of Objective 3: European Territorial Cooperation, Central Europe Programme. Empirical research was undertaken in the regions Mansfeld-Südharz (Germany), Salgótarján (Hungary), Sokolov-východ (Czech Republic), Steirische Eisenstraße (Austria), Wałbrzych (Poland), Zasavje (Slovenia) and Zwickau-Lugau-Oelsnitz (Germany). An international team of researchers observed the regions over three years.

The authors of this volume thus obtained unique insight into the current situation and development perspectives of post-mining regions in Central Europe and an opportunity to provide scientific feedback on the state and potentials of the regions involved.

CZECH

Krátké shrnutí této publikace

Post-těžební regiony střední Evropy – problémy, potenciály, příležitosti

Tato publikace se zabývá problémy, potenciály a perspektivami bývalých hornických regionů střední Evropy. Popisuje jejich situaci na začátku 21. století a zkoumá možnosti jejich rozvoje. Zvláštní pozornost je přitom věnována regionům s malými a středními městy, která často čelí specifickým rámcovým podmínkám a možnostem rozvoje.

Hlavním řešeným tématem jsou tzv. post-těžební potenciály a příležitosti, které tyto potenciály poskytují pro regeneraci měst a regionů. Báňské dědictví je často vnímáno jako problém. Na druhou stranu však může být vnímáno také jako příležitost, kterou je možné využít. Mohou to být přírodní potenciály, jako post-těžební krajina, teplé důlní vody či opuštěné důlní výsypky, a také kulturní potenciály, jako infrastruktura, budovy, tradice a zvyky. Zásadní věcí je, že zhodnocení uvedených potenciálů pro účely rekreace, propagaci báňského dědictví a zásobování energií může významně přispět k rozvoji těchto regionů po ukončení těžby.

První část publikace představuje změny v hornických regionech a nabízí přehled současného stavu poznání. Tento koncept je základem vlastní publikace: Jde o identifikaci a valorizaci post-těžebních potenciálů regionálními aktéry. Druhá část hodnotí sedm vybraných hornických regionů. Jsou zde popsány strukturální a institucionální rámcové podmínky, struktura aktérů a přístupy k rozvoji regionů. Třetí část se zabývá příklady osvědčené praxe v oblasti využití post-těžebních potenciálů ve střední Evropě. Je zde uvedena řada projektů a znalostních center, které představují status quo rozvoje post-těžebních regionů. Ve čtvrté části jsou detailně analyzovány specifické aspekty změn v post-těžebních městech a regionech. Řešenými tématy jsou změny funkcí malých hornických měst, budování institucionálních kapacit, role mládeže v procesu funkčních změn a dále specifické perspektivy post-těžebních regionů, jako např. re-industrializace, eko-turistika a zážitková turistika. V závěru jsou uvedena doporučení pro různé politické úrovně (místní, regionální, národní, evropskou) k získání účinné a adekvátní podpory pro přeměnu post-těžebních regionů.

Představené vědecké výsledky vznikly v rámci projektu "ReSource – Využití post-těžebních potenciálů pro udržitelný rozvoj středoevropských hornických měst a regionů", který byl reali-

zován v letech 2009 – 2012 v rámci Cíle 3: Evropská územní spolupráce, program střední Evropa. Empirický výzkum byl prováděn v regionech Mansfeld-Südharz (Německo), Salgótarján (Maďarsko), Sokolov-východ (Česká republika), Steirische Eisenstraße (Rakousko), Wałbrzych (Polsko), Zasavje (Slovinsko) a Zwickau-Lugau-Oelsnitz (Německo). Mezinárodní tým expertů prováděl výzkum v uvedených regionech po dobu tří let. Autoři této publikace tak získali jedinečný vhled do současného stavu a perspektiv rozvoje post-těžebních regionů ve střední Evropě a také příležitost poskytnout zpětnou vazbu týkající se postavení a potenciálů zúčastněných regionů.

Zdeňka Lipovská

GERMAN

Kurze Zusammenfassung des Buches

Regionen nach dem Bergbau in Mitteleuropa – Probleme, Potenziale, Perspektiven

Das vorliegende Buch ist den Problemen, Potenzialen und Perspektiven von ehemaligen Bergbauregionen in Mitteleuropa gewidmet. Es zielt darauf ab, deren Situation am Beginn des 21. Jahrhunderts zu beschreiben und tragfähige Perspektiven für die Gestaltung solcher Räume zu entwerfen. Im Fokus stehen klein- und mittelstädtisch geprägte Bergbauregionen mit ihren spezifischen Problemlagen und Entwicklungschancen.

Den Gegenstand der Untersuchung bilden aus dem Bergbau resultierende Potenziale für die Stadt- und Regionalentwicklung. Gemeint sind damit Hinterlassenschaften des Bergbaus, die mitunter als Probleme wahrgenommen werden, aber auch als Chancen verstanden und in Wert gesetzt werden können. Dies sind zum einen so genannte natürliche Potenziale wie die Bergbaufolgelandschaft, warmes Grubenwasser oder ungenutzte Haldenflächen. Zum anderen handelt es sich um kulturelle Potenziale wie die vom Bergbau hinterlassene Infrastruktur und Gebäude, aber auch Traditionen und Bräuche. Die Grundthese der Arbeit lautet, dass die Nutzung dieser Potenziale im Sinne von Erholungslandschaften, kulturellem Erbe oder durch Energieerzeugung einen bedeutenden Beitrag zur nachhaltigen Entwicklung nach dem Bergbau leisten kann.

Im ersten Teil wird die bisherige Diskussion zum Wandel von Bergbauregionen aufgearbeitet und der Wissensstand zusammengefasst. Darauf aufbauend wird das inhaltliche Konzept des Bandes entwickelt: Das Erkennen und die Inwertsetzung von Potenzialen des Bergbaus durch die regionalen Akteure. Im zweiten Teil des Buches werden die sieben untersuchten Bergbauregionen vorgestellt. Ihre strukturellen und institutionellen Rahmenbedingungen hin-

sichtlich der nachbergbaulichen Potenziale sowie Akteursstrukturen und Entwicklungsansätze werden beschrieben. Gegenstand des dritten Teils ist ein Überblick über gute Beispiele für die Nutzung nachbergbaulicher Potenziale in Mitteleuropa. Die in einer internetgestützten Datenbank dokumentierten Projekte und Kompetenzzentren vermitteln den Status quo nachbergbaulicher Entwicklung und bildeten eine Orientierungsgrundlage für die empirischen Untersuchungen. Im vierten Teil werden ausgewählte Aspekte des Wandels von Bergbaustädten und -regionen genauer untersucht. So geht es um den Funktionswandel kleiner Bergbaustädte, um die Schaffung von institutionellen Kapazitäten zur Bewältigung des Wandels, die Rolle der Jugend in Erneuerungsprozessen sowie spezielle Zukunftsperspektiven wie Reindustrialisierung, Ökotourismus und Eventtourismus. Abschließend werden Empfehlungen für die Politik auf den unterschiedlichen Ebenen (lokal, regional, national, Europa) vorgestellt, die auf eine wirksame und angemessene Unterstützung des Umbaus von Bergbauregionen zielen. Die Forschungsergebnisse sind im Rahmen des Projektes „ReSource – Nutzung nachbergbaulicher Potenziale für die nachhaltige Erneuerung von Bergbaustädten und -regionen“ entstanden, das von 2009 bis 2012 im Rahmen der Europäischen Territorialen Kooperation (Ziel 3), Programmraum Mitteleuropa, durchgeführt wurde. Die empirischen Untersuchungen wurden in den am Projekt beteiligten Regionen Mansfeld-Südharz (Deutschland), Salgótarján (Ungarn), Sokolov-východ (Tschechische Republik), Steirische Eisenstraße (Österreich), Wałbrzych (Polen), Zasavje (Slowenien) und Zwickau-Lugau-Oelsnitz (Deutschland) durchgeführt. Ein internationales Wissenschaftlerteam, bestehend aus den Autoren dieses Buches, hat die Regionen drei Jahre lang begleitet und auf diesem Wege einen einmaligen Einblick in die aktuelle Lage und in die Perspektiven von ehemaligen Bergbauregionen in Mitteleuropa erhalten.

Peter Wirth

HUNGARIAN

A kötet tartalmának rövid összefoglalása

Felhagyott bányavidékek Közép-Európában – gondok, erőforrások, lehetőségek

Ez a könyv Közép-Európa egykori, felhagyott bányavidékeinek gondjait, erőforrásait és lehetőségeit taglalja. Bemutatja, milyen állapotban vannak napjainkban, a 21. század elején, és megvizsgálja, milyen lehetőségek kínálkoznak az ilyen régiók fejlesztésére. A tanulmányok különös figyelmet szentelnek a közepes méretű és kisvárosoknak, amelyek lehetőségei gyakran sajátos feltételektől, fejlesztési elképzelésektől függenek.

A vizsgálatok fő területét azok a lehetséges erőforrások jelentik, amelyek a bányászat megszűnte után is rendelkezésre állnak és lehetőséget kínálnak a városok, régiók felélesztésére. A bányászati örökség általában súlyos problémaként jelenik meg, holott az örökség sok eleme megvalósítható lehetőségeket is kínálhat. Ezek a megmaradt erőforrások, potenciálok lehetnek egyrészt természetiek, mint pl. a termális bányavizek, az átalakult kultúrtájak vagy a hasznosítható meddőhányók, másrészt lehetnek kulturálisak, mint pl. a hajdani bányászat hagyományai, szokásai, megmaradt infrastruktúrája. A könyv vezérgondolata, hogy ezen erőforrások felismerése és hasznosítása a rekreáció, az örökségvédelem és az energiaellátás érdekében jelentős mértékben hozzájárulhat a térség fenntartható fejlesztéséhez a bányászat felhagyása utáni időkben.

A kiadvány első része ismerteti azokat a vitákat és megállapításokat, amelyek a felhagyott bányavidékekkel foglalkoznak, és áttekinti, mennyire ismerjük ezt a kérdést. Ezzel összefüggésben a kötet alapgondolata, hogy a helyi szereplők ismerjék fel és értékeljék a bányászat felhagyása után is megmaradt erőforrásokat, potenciálokat. A második rész sorban ismertet hét kiválasztott bányavidéket, az azokra jellemző szerkezeti és intézményi keretfeltételeket, a térségi szereplők helyzetét, valamint a térségi fejlesztési tervek vonatkozó elemeit. A harmadik fejezet olyan közép-európai követendő példák bemutatására összpontosít, amelyek a bányászat felhagyását követően megmaradt erőforrások, potenciálok hasznosítására törekednek. Egy sor megvalósított elképzelés és ezeket támogató tudásközpontok bemutatása példázza, hol tart ma néhány egykori bányavidék. A negyedik rész fejezetei e térségek megváltoztatásának egyes sajátos lehetőségeit elemzik részletesen, így a kis bányavárosok szerepkörének változását, intézményi kapacitásának építését, a fiatalok szerepét a térségi funkciók változásának folyamatában, valamint olyan sajátos kitorési lehetőségeket, mint az újraiparosítás, az ökoturizmus vagy éppen a kalandturizmus. Végezetül a könyvet különböző (helyi, regionális, országos, európai) szintekre vonatkozó ajánlások zárják, amelyek megvalósítása hatékony és megfelelő támogatást nyújthat a felhagyott bányavidékek újbóli felvirágoztatására.

Az itt közölt tudományos kutatási eredmények az Európai Unió által meghirdetett „Objective 3: European Territorial Cooperation, Central Europe Programme” keretében 2009–2012 között lebonyolított „ReSource – Utilisation of post-mining potentials for sustainable re-development in Central European mining cities and regions” projekt során születtek meg. Empirikus kutatások folytak az alábbi térségekben: Mansfeld–Südharz (Németország), Salgótarján (Magyarország), Sokolov-východ (Csehország), Steirische Eisenstraße (Ausztria), Wałbrzych (Lengyelország), Zasavje (Szlovénia) és Zwickau–Lugau–Oelsnitz (Németország). Egy nemzetközi kutatócsoport három éven keresztül vizsgálta a régiókat. E kötet szerzői különleges betekintést nyerhettek közép-európai felhagyott bányaterületek jelenlegi helyzetébe és fejlesztési terveibe, és lehetőséget kaptak arra, hogy tudományosan értékeljék a kutatásba bevont régiók jelenlegi állapotát és jövőbeni lehetőségeit.

POLISH

Streszczenie

Regiony pogórnice w Europie Środkowej – Problemy, Potencjały, Możliwości

W niniejszym tomie skoncentrowano się na problemach, potencjałach oraz perspektywach byłych regionów górniczych w Europie Środkowej. Głównym celem była charakterystyka sytuacji tego typu regionów na początku XXI wieku oraz analiza ich możliwości rozwoju. Szczególną uwagę zwrócono na regiony pogórnice, w których zlokalizowane są małe i średnie miasta, z uwagi na fakt, iż ich rozwój często podlega specyficznym uwarunkowaniom, zarówno ze względu na możliwości, jak i bariery rozwoju.

Głównym przedmiotem badań były tzw. potencjały pogórnice i sposób w jaki ich wykorzystanie może przyczynić się do rekonwersji miast i regionów pogórnich. Jakkolwiek dziedzictwo górnicze jest często postrzegane jako bariera rozwoju, wiele z jego elementów może również stanowić dla niego szansę. Z jednej strony mogą to być potencjały naturalne, takie jak np. pogórnicy krajobraz, ciepłe wody kopalniane lub pozostałe po działalności górniczej hałdy. Z drugiej strony wśród pogórnich potencjałów kulturowych można wymienić m.in. pokopalnianą infrastrukturę, a także górnicze tradycje i obyczaje. Podstawowa teza pracy zakłada, iż wykorzystanie potencjałów pogórnich dla potrzeb turystyki i rekreacji, ochrony dziedzictwa kulturowego czy też dostaw energii odnawialnej może w znacznym stopniu przyczynić się do zrównoważonego rozwoju regionu po zakończeniu działalności górniczej.

Pierwsza część opracowania dotyczy problematyki szeroko rozumianego procesu przemian regionów górniczych i zawiera omówienie stanu wiedzy z tego zakresu. Główna koncepcja pracy, będąca przedmiotem dalszych rozważań, bazując na części teoretycznej zakłada identyfikację i ocenę potencjałów pogórnich przez aktorów regionalnych. W rozdziale drugim przedstawiono siedem badanych regionów górniczych/pogórnich. Scharakteryzowane zostały ich uwarunkowania społeczno-gospodarcze, środowiskowe i instytucjonalne, jak również sieć aktorów oraz wykorzystywane strategie i instrumenty rozwoju regionalnego i lokalnego. Trzecia część opracowania koncentruje się na przykładach dobrych praktyk dotyczących wykorzystania potencjałów pogórnich w Europie Środkowej. Przedstawiono szereg inicjatyw i centrów wiedzy z tego zakresu, co pozwoliło zobrazować stan rozwoju w obszarach pogórnich. W rozdziale czwartym szczegółowej analizie poddano wybrane aspekty przemian w miastach i regionach pogórnich. Wśród poruszanych obszarów problemowych znalazły się zmiany funkcjonalne małych i średnich miast górniczych, kwestie budowania zdolności instytucjonalnych, rola młodzieży w procesie zmian funkcjonalnych, jak również wybrane kierunki rozwoju dla regionów pogórnich takie jak reindustrializacja, rozwój ekoturystyki, czy też turystyki przygodowej. W części ostatniej przedstawiono rekomendacje

dla prowadzenia polityki mającej na celu efektywne i odpowiednie wsparcie dla transformacji byłych regionów górniczych (na szczeblu lokalnym, regionalnym, krajowym, europejskim).

Przedstawione w niniejszym tomie wyniki badań naukowych są jednym z efektów projektu »ReSource – Wykorzystanie potencjałów pogórnich dla zrównoważonego rozwoju miast i regionów górniczych Europy Środkowej» realizowanego w latach 2009 – 2012 w ramach Celu 3: Europejska Współpraca Terytorialna, Program Europa Środkowa. Badania empiryczne przeprowadzone zostały w regionach: Mansfeld-Südharz (Niemcy), Salgótarján (Węgry), Sokolov-východ (Czechy), Steirische Eisenstraße (Austria), Wałbrzych (Polska), Zasavje (Słowenia) i Zwickau-Lugau-Oelsnitz (Niemcy). Międzynarodowy zespół naukowców współpracował z wymienionymi regionom przez trzy lata. Autorzy tego tomu mieli w ten sposób unikalną możliwość wglądu w aktualną sytuację, jak i możliwości rozwoju regionów pogórnich w Europie Środkowej, a przez to przedstawienie stanu i potencjału rozwojowego badanych regionów z perspektywy naukowej.

Sylwia Dołzbłasz

SLOVENIAN

Povzetek knjige v slovenskem jeziku

Porudarske regije srednje Evrope – problemi, potenciali, možnosti

Osrednja tema monografije so problemi, potenciali in razvojne možnosti nekdanjih rudarskih regij srednje Evrope na začetku 21. stoletja. Posebna pozornost je namenjena regijam z majhnimi in srednjevelikimi mesti, v katerih najdemo zanje značilen institucionalni okvir in dejavnike regionalnega razvoja.

Večina prispevkov je namenjenih raziskavi tako imenovanih porudarskih potencialov in možnosti, ki jih ti ponujajo za regionalno in urbano revitalizacijo. Pogosto je dediščina rudarstva namreč obravnavana kot problem, čeprav nasprotno večkrat predstavlja priložnost, ki bi jo bilo treba izkoristiti. Potenciale delimo na naravne, med katere prištevamo na primer krajino, geotermalno vodo iz rudnikov in zapuščene deponije, in kulturne, ki vključujejo infrastrukturo, stavbe ter rudarsko tradicijo in običaje. Osnovna zamisel je, da lahko ovrednotenje in uporaba teh potencialov za ureditev rekreacijskih površin, turističnih znamenitosti ali oskrbe z energijo prispevajo k trajnostnemu razvoju po zaključku rudarjenja.

Prvi del knjige je posvečen uvodu v koncept porudarskih potencialov in pregledu dosedanjih raziskav na tem področju. Teoretičen koncept služi kot osnovna za ovrednotenje pomena

porudarskih potencialov, kot jih v nadaljevanju prepoznavajo regionalni deležniki in raziskovalci. V drugem delu najdemo opis stanja v sedmih izbranih regijah, v katerih se je rudarjenje že zaključilo ali se zaključuje: v dveh nemških in po eni iz Avstrije, Češke, Madžarske, Poljske in Slovenije. Analiza izpostavlja tako strukturne in institucionalne značilnosti kot tudi sodelovanje deležnikov in pristope k regionalnemu razvoju. V tretjem delu so predstavljeni primeri dobre prakse uporabe porudarskih potencialov v srednji Evropi. Pregled vključuje projekte dobre prakse in centre znanja, ki se ukvarjajo s preučevanjem porudarskih regij in jim hkrati nudijo ekspertna znanja v procesu preobrazbe. Četrti del je sestavljen iz prispevkov, v katerih so posamezne teme razvoja rudarskih regij v tranziciji obdelane podrobneje. Obravnavane so funkcionalne spremembe manjših mest v teh regijah, zagotavljanje institucionalne usposobljenosti, vloga mladih v procesu sprememb, kot tudi posamezne gospodarsko obarvane teme, na primer ponovna industrializacija, ekoturizem in doživljajski turizem. V zadnjem delu so podana priporočila za pripravo politik na različnih upravljaljskih ravneh – lokalni, regionalni, nacionalni in evropski, ki naj bi zagotovila zadostno in učinkovito podporo za preobrazbo porudarskih regij.

Vsebina, predstavljena v tej knjigi, je rezultat znanstvenega dela v projektu »ReSource – Uporaba porudarskih priložnosti za trajnostni razvoj rudarskih regij srednje Evrope«, ki je potekal v letih med 2009 in 2012 v okviru programa transnacionalnega sodelovanja Cilj 3 Teritorialno sodelovanje, program Srednje Evrope. Empirična raziskava je bila izvedena v regijah Mansfeld-Südharz (Nemčija), Salgótarján (Madžarska), Sokolov-východ (Češka republika), Steirische Eisenstraße (Avstrija), Wałbrzych (Poljska), Zasavje (Slovenija) in Zwickau-Lugau-Oelsnitz (Nemčija). Mednarodna skupina raziskovalcev je tako v treh letih dobila dober vpogled v sedanje stanje obravnavanih srednjeevropskih regij in njihove razvojne potenciale, ki ga je kritično ovrednotila in pripravila usmeritve za naprej.

Naja Marot

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This volume is about post-mining regions in Central Europe, where people have taken up the challenge of overcoming the crisis provoked by the cessation of mining. Although the situation in these regions is mostly difficult, the book is not about decline and desperation. It is about concepts and strategies for shaping new perspectives at the beginning of the 21st century. It is about people who envisage new leisure attractions where excavators left a lunar landscape a few years ago, who create new technology centres on the sites of abandoned processing plants, and who plan to extract clean energy from mine-water flowing hundreds of meters under the surface; people intent on exploiting so-called »post-mining potentials« – the central topic of this volume.

After more than three years of common research, a group of scientists from Austria, the Czech Republic, Germany, Hungary, Poland, and Slovenia present an overview of the current situation and development perspectives in seven post-mining regions of Central Europe. They show that sustainable post-mining development is a highly relevant subject in our times. Despite the innumerable problems, a positive conclusion can be drawn: change is possible, and cooperation across the borders of European countries can contribute to its success.

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