GEOLOGIJA *49/1,* 163–172, Ljubljana 2006

The effect of policy choices on mineral availability

Učinek izbire politik na razpoložljivost mineralnih surovin

Slavko V. ŠOLAR[1] & Deborah SHIELDS[2],

[1]Geological Survey of Slovenia, Dimičeva 14, 1000 Ljubljana, Slovenia
[2]USDA Forest Service – Research and Development, 2150 Centre Ave., Bldg. A, Fort Collins, CO 80526, USA

Key words: mineral resources, policy, sustainable development, Eastern Europe
Ključne besede: mineralne surovine, razvojne usmeritve - politike, trajnostni razvoj, Vzhodna Evropa

Abstract

During the late 1980s and early 1990s almost 100 nations introduced new or revised existing, mineral policies and laws. We are now in another period of revision, particularly in the Eastern European nations. National mineral policies in these countries are being, or recently have been, reconsidered for several reasons. First, policies from the prior political era were not consistent with market driven economic policies. Second, they did not reflect the regulatory framework or policy directives of the new, integrating Europe. Finally, old policies did not address the concerns, issues and needs of societies today, primary among these being the desire for a sustainable future. In this paper we argue that each country's mix of imported and domestically produced minerals should be economically profitable, socially acceptable, and in compliance with sustainable development principles. In this paper we focus on the ongoing revision of mineral policies in Eastern European countries transitioning to market-driven economies. We first review basic policy concepts, placing emphasis on the purpose and scope of mineral policies. We then briefly describe EU positions on sustainability, and economic and mineral policy. This is followed by a general review of the mineral policies and management situation in the transition economies of Eastern Europe. We conclude that of number of the current policies have the potential to limit the availability of minerals to countries in this region rather than ensuring their supply. We also identify several policy trends that are inconsistent with sustainability principles.

Kratka vsebina

Koncem osemdesetih in v začetku devetdesetih let prejšnjega stoletja je skoraj 100 držav spremenilo, obnovilo svoje politike in zakonodajo na področju rudarstva. V začetku novega tisočletja smo, predvsem v Vzhodni Evropi, ponovno v fazi prenove. Nacionalne rudarske politike so bile obnovljene zaradi različnih razlogov. Prvič, politike izpred devetdesetih, niso bile primerljive s politikami tržnega gospodarstva, drugič, politike niso ustrezale zakonodajnem okviru integrirane Evrope, končno stare politike niso upoštevale skrbi, potreb in odprtih vprašanj današnje družbe, predvsem želje po prihodnosti temelječi na načelih trajnostnega razvoja. V članku smo se osredotočili na potekajočo revizijo rudarskih politik v Vzhodni Evropi v prehodnem obdobju, na poti k tržnem gospodarstvu. Prvo smo pregledali temeljne koncepte politik, s posebnim ozirom na namen in področje delovanja rudarskih politik. Potem na kratko opišemo stališča Evropske Unije v zvezi s trajnostnim razvojem, gospodarsko in rudarsko politiko. Temu sledi splošen pregled rudarskih politik in gospodarjenja z mineralnimi surovinami v gospodarstvih Vzhodne Evrope. Zaključujemo z ugotovitvijo, da številne rudarske politike vsebujejo usmeritve, ki lahko na regionalni ali državni ravni bolj omejujejo dostopnost do mineralnih surovin kot oskrbo z njimi. Poleg tega tudi ugotavljamo, da številni trendi rudarskih politik niso skladni z načeli trajnostnega razvoja.

INTRODUCTION

In the last twenty years, Eastern Europe has experienced changes that were unforeseeable in their magnitude before they began. During this period nations disintegrated (Soviet Union, Yugoslavia, Czechoslovakia), which in some cases led to war. Eastern European countries embraced democracy as the social system. There was a shift to market-based economic policies. In 2004, ten mostly Eastern European countries joined the European Union (EU); some countries in the southeast of Europe are now in the process of joining the EU.

Accession to the EU necessitates adoption of EU legislation. It has also led to an increasingly free flow of capital, labor, products and information among nations of the enlarged European Union (EU). The understanding of sustainability principles and a desire for sustainable futures is spreading. The impacts of such major events permeate virtually all aspects of these societies. Policies are changing, albeit at different rates and to different degrees in each accessioning country.

In this paper we focus on the ongoing revision of mineral policies in Eastern European countries transitioning to market-driven economies. We first review basic policy concepts, placing emphasis on the purpose and scope of mineral policies. We then briefly describe EU positions on sustainability, and economic and mineral policies. This is followed by a general review of the mineral policies and management situation in the transition economies of Eastern Europe. Finally, we conclude with a discussion of the potential impacts of selected Eastern European mineral policies on the availability of minerals.

POLICY CONCEPTS

Policies reflect the values and goals of the people involved in their creation. In the best of circumstances, they articulate the desires of a society and their perspectives about important issues of the day. They codify objectives about the kind of world people want to live in and the means they considerable acceptable in achieving those specified end-states, and do so in a manner consistent with the social and political system of the country (Shields et al., 2002a). This is true for all policies, be they economic, environmental, or mineral.

An economic system is the set of policies, mechanisms, rules and institutions that a society uses to make decisions about economic issues and implement those decisions. The environment of the economic system includes the level of development, resource endowment, and the stocks of human and built physical capital, and consumer preferences. The economic system in Eastern Europe has been shifting from the central-planning model, which existed previously in countries belonging to Council for Mutual Economic Assistance, to the market-directed model existing in the EU. Production levels will no longer be dictated by the state, but rather will vary in response to market demand. Prices will not be prespecified; they will be the outcome of agreements between willing buyers and sellers.

In Europe, and other parts of the world, policies are being reconsidered in light of sustainability principles. Gibson (2005) lists requirements for progress towards sustainability: 1) socio-ecological integrity, 2) livelihood sufficiency and opportunity, 3) intra-generational equity, 4) intergenerational equity, 5) resource maintenance and efficiency, 6) socio-ecological civility and democratic governance, 7) precaution and adaptation, and 8) immediate and long term integration. They provide a way to look at whether or in what areas we are or are not making progress toward sustainability. As we discuss later in this paper, the EU has placed considerable emphasis on sustainability and has created a Sustainable Development Strategy.

Development, sustainable or otherwise, requires raw materials. A case in point is infrastructure development in Eastern Europe, which will require large volumes of construction materials. Because of the importance of raw materials to societies, most countries have official minerals policies. In the next section we consider the basis for, and necessary content of, mineral policies.

Mineral Policies

Mineral policy is complex because of the range of resources involved. Each commo-

dity has its own economic, military, social, and environmental considerations. Some authors have gone so far as to suggest that no minerals policy beyond žpious generalizations that compromise a number of conflicting private interests and national objectives' has been achieved (Mikesell, 1987, p. 1). That inherent complexity has only been increased by the addition of sustainable development concerns. Achieving goals of environmental protection, intra- and intergenerational equity, and economic growth and stability, will require tradeoffs across space and time, and among objectives.

Sustainable mineral policies can provide a framework for balancing benefits and costs to society with regard to minerals. The main benefits are supplying a material basis for society, wealth creation by mining activities, tax revenues to the state, and employment; major costs are environmental pollution, social disturbance in local communities, and land use conflicts. Priorities with respect to benefits and costs differ from country to country.

One major governmental role in sustainable development policy for minerals is to create an enabling economic environment that aligns a country's investments with its underlying comparative advantage, so as to improve the use of scarce capital and human resources (Auty, 2003). More generally, the foundational concepts of sustainable mineral policies are: 1) facilitating the transformation of natural mineral capital into built physical, economic, environmental or social capital of equal or greater value; 2) ensuring that environmental and social impacts of mining are minimized; 3) addressing the trade offs that society needs to make; and 4) taking all relevant scale hierarchies into consideration (Shields & Šolar, 2004). It is also essential that a sustainable mineral policy be correlated and consistent with other governmental policies (Shields et al., 2002a).

Mineral policy should endeavor to ensure adequate mineral supply, comprised of a mix of domestically produced and imported materials that has been produced in ways that are compatible with sustainable development principles. We term this a sustainable supply mix.

National minerals policies also need to provide the regulatory certainty necessary to foster investments in mineral development that have been designed to achieve sound economic, environmental and social objectives (Carpenter, 2005). In particular, mineral policy must deal with allocation of rights to subsurface resources. Europe has a tradition of predominately state ownership of mineral rights, whereas in the United States many mineral rights are held by private individuals. Regardless of who holds that right to a mineral deposit, surety about who holds them is essential. Private investors will not explore for, develop and extract minerals in the absence of clear, enforceable and enforced ownership rights.

Competitiveness of the minerals sector has been, and continues to be an important issue for policy makers. In the past, competitiveness was believed to be a function of deposit quality: mines with high grade ores would have a cost advantage in the marketplace. The resulting mineral policies focused on land access and exploration to replace depleting high quality reserves. It is now recognized that ore is defined economically and that technological innovation can lower cut off grade. Thus, newer mineral policies often include language supporting research and development, and encouraging the implementation of innovative practices.

Overall, a country's national mineral policy should include: policy scope, sovereignty, economics, quality of life, legislative framework, and regulatory agencies (Otto, 1997). It should also clearly define types of acceptable mineral activity and types of minerals that can be exploited. These elements will be addressed further in the section on mineral policies in transition economies.

POLICIES IN THE EUROPEAN UNION AND TRANSITION ECONOMIES

Policies in the European Union

At meeting in Lisbon in March 2000, the European Council adopted a strategy intended to inform all EU policy initiatives (Lisbon European Council, 2000). The goal of the Lisbon Strategy was to enable the Union to become, by 2010, the most competitive and dynamic knowledge–based economy in the world, capable of sustainable economic growth with more and better jobs and gre-

ater social cohesion. The Lisbon Strategy was revised in the spring of 2005 with a stronger focus on jobs and growth (EU, 2005a). An Integrated Guidelines Package was negotiated for the 2005-2008 period and key areas for achieving Lisbon objectives were identified. These include: free and fair trade, improving European infrastructure, and boosting innovation among others.

The EU Treaty requires the integration of sustainable development into all European policies, so they are designed in a balanced and mutually reinforcing way to meet economic, environmental and social objectives. The EU adopted the Brundlandt Commission's sustainable development definition as a basic guideline. Building on the Lisbon strategy, the Gothenburg summit adopted "A European Union Strategy for Sustainable Development" in 2001 (EU, 2001). It represented the first EU Sustainable Development Strategy and focused on environmental protection, social equity and cohesion, economic prosperity and active promotion of sustainable development worldwide. It proposed headline objectives and a series of policy measures. Priorities relevant to our discussion here included:

- Combat poverty and social exclusion,
- Ensure sustainable transport, and
- Manage natural resources more responsibly.

Since the adoption of the strategy in 2001, significant changes have occurred: the enlargement of the European Union to 25 Member States; increased instability due to the terrorist threats and violence; further globalisation and changes in EU and world economy; persistent and increasingly apparent signs of environmental problems. In response, the Commission published "On the review of the Sustainable Development Strategy: A platform for action" (EU, 2005b). The updated strategy focuses on a number of key challenges, including:

- Social exclusion, demography and migration;
- Global poverty and development;
- Sustainable transport; and
- The management of natural resources.

Prior to the 21st century, the mineral policies of EU nations tended to be fragmented and inconsistent, with more emphasis on environmental protection than on ensuring sufficient supply or supporting competitiveness. This occurred in part because until recently EU mineral policies were influenced by three assumptions:

1. That there will always be total access to the worlds mineral supplies;
2. That world mineral production will keep pace not only with increasing mineral requirements of established industrial countries as well as the newly industrialized economies, but also with the dynamic growth of world population; and
3. That the EU will always find the means to pay increased mineral imports" (Schefold, 1997).

Clearly, these assumptions are no longer valid given the current world situation noted above and are inconsistent with the original and reconsidered Lisbon Strategies. A strong and competitive EU mineral industry is needed. It can contribute to the interests of Europe by helping to insulate the EU economy from major disruptions in the world market that might restrict access to essential raw materials (Allegre, 1991). A policy framework for sustainable resource management will be required both to guarantee the material basis and energy supply for EU economy and safeguard the natural resource basis in future (Bringezu, 2002).

The Communication from the Commission entitled "Promoting sustainable development in the EU non-energy extractive industry" begins to address this issue (EU, 2000). The objective of the Communication was to set out broad guidelines for a sustainable development-based mineral policy that would promote both pollution control and reduction, and also industry competitiveness. Priority issues include a high level of environmental protection, land access for exploration, worker health and safety, and research and development. The impact of Communication 265 on national mineral policies is currently being evaluated (TEEC, 2006).

The Strategies and Communications discussed above not withstanding, the EU has no declared and agreed upon mineral policy. (The Constitution that was recently voted upon specifically stated that the EU would not have a mineral policy). To date, the EU has various guidelines that are dispersed in

many EU documents. For example, industrial policy can promote heavy industry, transportation infrastructure development, and export promotion, each of which have the potential to impact the pattern and level of mineral material consumption. (Hewett, 1980). Recent policy advice on EU industrial policy highlights competitiveness. The Communication on Industrial Policy COM474 (EU, 2005c) looks at:

- Screening of competitiveness of 27 sectors (including the non-energy extractive industry),
- Main policy challenges,
- Setting of cross-sectoral policy initiatives, and
- Setting of sector-specific initiatives.

These and other documents point out characteristics of sustainable societies, i.e., they attempt to acknowledge, address and balance social, economic and environmental concerns. In setting policies for the minerals sector, EU nations will have to consider the following several issues in detail as they develop and revise their mineral policies (Anciaux, 2005):

- Land access,
- Levels of investment,
- Legal framework,
- Human resources and skills,
- Research and development, and
- Access to markets and globalization.

Analysis of Mineral Policy Elements in Eastern Europe

Mineral policies are usually part of industrial policies of transition countries. While not typically written in stand-alone documents, they are firmly coded in mining laws that have been revised at least twice in recent years. The first revision was a consequence of the change of socio-economic system, i.e., from state planned to free market economy. The second change was related to harmonization to EU legislation in period prior to uniting with the European Union.

Countries joining the EU go through a process in which their existing legislation is screened. In the case of mining, certain requests are made, for example that mining legislation be translated into English. Specific policy and legislative areas are scrutinized, including subsidies to the mining sector, provisions for worker health and safety, and royalties and concessions. The EU is particularly interested in ensuring that all EU members have equal opportunities to invest in the country minerals sector and that capital can flow freely between EU nations.

It will take years, perhaps several decades, for well-integrated systems of law to emerge that address the many regulatory matters associated with mining. Surveys of EU member states national mineral (planning) policies were done in 1994 (Land Use Consultants et al.) and 2004 (Wagner). The following discussion is based both on these documents and the knowledge of the authors. Policy elements introduced by Otto (1997) are useful cornerstones for observation of the status and trends of mineral policy in transition-economy EU member states. We identify the contents of each of Otto's categories, providing detail in selected areas; however, comprehensive discussion here of policy status for all Eastern European nations is precluded by space limitations.

Policy Scope has following sub-sections: a) types of mineral activity, b) types of minerals, and c) relationship of mineral policy to other national policies.

Types of mineral activity – In pre-transition Eastern Europe, all stages of the mine cycle, i.e., exploration, mine development, operation, closure and reclamation, were typically present wherever there was a mining industry. Further, there were well established linkages to beneficiation, processing and/or smelting. These phases logically proceeded to manufacturing, sales, use and disposal of products, including even some recycling. Industry systems were complete in terms of material flow, but inefficient with regard to competitiveness, material use, and environmental protection.

Parts of the mine and product cycles had been very profitable, either due to the failure to account for externalities or to other market imperfections. For example, not all costs, particularly environmental ones, were included in the production costs. In other cases, parts of the system were subsidized either by direct monetary transfers or were profitable because the state-mandated market price of their product was intentionally set in excess of their costs. Without these special circumstances, many of the large sta-

te-owned companies were not able to compete under the open market conditions.

At the beginning of the transition period the state ceased to regulate or plan materials supply and demand. In many cases, the state focused on maintaining employment levels and gave no special attention to the minerals industry. Previously, the state had ensured that every activity necessary to move minerals from a mine to a product in the market would be present and linked together. With, the downfall of central planning, mineral industry systems broke apart to small companies. The uncompetitive subsidiaries, or business segments, went bankrupt. Many of the rest were marketed to western companies, often at low prices, and subsequently were reorganized, and downsized, in an effort to make them economically viable. Links in the supply chain disappeared as some newly independent firms went out of business and others changed their focus to activities that their new owners thought would be more profitable than activities designed to support the minerals sector had been. Inevitably, mineral production and mineral activities in general has decreased substantially from the pre-transition era. For example, between 1992 and 2000 mineral extraction in Lithuania reduced to 15 – 22 % of former annual volume (Gasiuniene, 2000).

Types of minerals – Prior to transition, the types of minerals produced in Eastern European countries was a function of known national mineral wealth and planned state material demand. Deposits of minerals that would be considered uneconomic in a market economy were developed, and production subsidized, if the resource was deemed necessary for fulfillment of the central plan. As noted in the previous section, after the change in early 1990s, overall mineral production decreased; however, the situation was not the same for all mineral commodities.

Previously, metal production had been done mostly by large companies, industrial mineral production by both large and small companies, and construction materials mostly in small companies or subsidiaries of larger companies (construction, brick industry, cement, etc.). The state usually oversaw the disposition of large mineral firms, which were either closed, rehabilitated and/or prepared for privatization, depending on the quality of the deposit, amount of remaining reserves, and other factors. Smaller companies were more or less left to new market conditions, meaning that they either went bankrupt or were privatized. In the end, regardless of the size of the firm, only those commodities that can be sold at a profit will continue to be produced. However, as is discussed in a later section, some subsidized state-owned minerals firms do continue to exist for the time being.

Over time, as free market supply and demand conditions have taken hold, the economies in many Eastern European countries have begun to recover. That recovery has led to increased demand for minerals. The market response has been a combination of higher prices, selected instances of increased domestic production, and increased imports. In the case infrastructure reconstruction and expansion, and particularly for transportation infrastructure, the increased demand for minerals (aggregates) has been met by domestically extracted resources due to the low ratio of market value to transportation costs.

Relationship of mineral policy to other national policies - As mentioned above, in the first half of 1990s economic policy dominated other policy priorities in the industrial and mineral sectors. Privatization, unemployment, and restructuring were the main issues of concern. In many cases, sectoral policies were in conflict. Implementing one policy would have unintended consequences, or even generate negative or undesirable outcomes, that would make other policy goals unachievable. This has particularly been the case with industrial and environmental policies (Shields et al., 2002b).

Sovereignty includes these elements: a) role of government in investment decision-making, b) role of State enterprises, c) mineral ownership, d) foreign participation, e) state equity requirement, and f) local joint venture or other equity requirements.

Role of government in investment decision-making – Most state investments in Eastern Europe are now being directed into the enterprise reorganization, environmental rehabilitation, and reducing social pressures (unemployment). Substantial prior exploration by state agencies identified potentially economic deposits in some countries. Efforts

to market these deposits through bidding processes have met with generally unfavorable results (Otto, 1999).

Regulatory and fiscal frameworks support investments, but circumstances in Eastern Europe can make the investment climate for non-governmental entities challenging. Often prior-existing mining companies have past environmental burdens that will make it difficult, if not impossible, and certainly costly for them to comply with environmental regulations posed by European regulatory framework. In addition, some Eastern European governments are attempting to pass historic environmental burdens on to privatized mining companies making investment in those firms less attractive. Investment climate is also affected by governmental assumptions about the value of mineral properties, which has led them to over-valued certain properties relative to what investors are willing to pay. In some cases, investment is also being slowed or stopped by policies and legislation that is being promulgated in non- mining areas such as land use planning.

Role of State enterprises - New EU member states are not founding new state mining enterprises. All new firms are being established by private investors with or without (mostly) a state share. However, the idea of keeping state owned (or controlled) enterprises has returned to public debate, especially with regard to strategic mineral or energy resources. Some countries are now seeking to continue State mining but under market-based objectives (Otto, 1999). This reemerging thinking is in part a reaction to market shortages and insufficient supply that followed the closure of some state firms and rise of prices that occurred during the initial transition period.

In addition, state enterprises are in a privileged position with respect to private sector because of subsidies and better access to state agencies services. Subsidies ease their market position; access to state agencies can provide additional state assistance in the areas of exploration, environment performance and monitoring and can ensure sales of minerals to state projects such as infrastructure construction or building maintenance, or to other state enterprises.

Mineral ownership - All strategic and high value, as well as some other, mineral resources are state owned in Eastern European nations. In a few countries (Poland, Latvia, Estonia), bulk materials and construction materials are owned by the landowner or other private individuals (Wagner, 2004). In the 1990's each country re-introduced a process for granting mining rights. Most require the payment of fees for the right and the payment of some form of royalty to the state.

Foreign participation – Many foreign companies have participated in the privatization of the mining sector. The nature of their participation has depended on the legislation of the specific country. In some Eastern European countries foreign companies could not mine as stand alone firms during the early 1990s. They could participate as part of joint ventures with domestic companies, which were in many cases established with foreign capital. Later, in phase of joining the EU, foreign companies were allowed to enter the mining sector directly (without joint ventures) and many of them have performed sectoral concentration by buying smaller companies dealing with the same or similar commodities. The aggregates (construction materials) sector was particularly affected by concentration of production capacities.

Economics have an important role in every policy. With regard to mineral policy economic issues include: a) taxation types, levels and distribution, b) export restrictions, costs, incentives, c) import restrictions, costs, d) role in economic development, e) employment requirements, f) conservation and efficiency, and h) land use.

Export restrictions, costs, incentives - Most restrictions on the export of minerals resources were removed during the first phase of privatization, immediately after the change from planned to market economy. Many states are beginning to rethink export and self-sufficiency policy concepts for parts of or even for the entire mineral sector. There remains a strong feeling that mineral resources are part of the country's patrimony and should be kept for the benefit of the nation. This attitude, when combined with a strong preference for exporting value-added products versus primary materials, has created almost an unofficial ban on exporting raw materials. The issue remains open and controversial in some countries.

Employment requirements - Full employment was an important policy goal in pre-transition economies. This led to over-employment in some sectors, including in the minerals sector. As state owned enterprises have been privatized, employment levels have decreased to the levels seen in the industry in other regions of the world. The closure of some firms and decreases in mineral production has further reduced employment in the sector. Unemployment was, and remains, a serious social problem in transition countries.

Land use - Land use planning is an important development tool that takes into account a range of spatial components, such as environmental protection, biodiversity, protection of national heritage, etc.). Previously, mining had priority as a land use due to overall societal priorities. That is no longer the case. Obtaining land use permits has become a major obstacle in the mine permitting process in transition economies. When a mine site has been placed in the local land use plan, it is a sign that the mine has passed a major step in obtaining the social license to mine. There will minimal obstacles to its continued operation, or its development, assuming that the proper environmental permits can be obtained. Conversely, in many countries it is difficult, if not impossible, to operate or open a mine that is not in an approved land use plan.

Quality of life looks at impacts on a) society and b) environment.

Social impact – In transition economy countries, governments finance, or are deeply involved, in mine closure and restoration. In these areas the most visible negative social impacts are unemployment, and other negative consequences related to unemployment, such as alcoholism, crime, and family violence. Substantial money from national budgets is being directed to these areas in order to help impacted citizens and minimize social unrest. The state is typically not involved in the operational phase of most mines and is much less likely to be dealing directly with the social impacts of ongoing operations. Unfortunately, many mines and open pits are having little positive impact on local communities. Employment, if any remains, is low; contributions to the local economy are insignificant; and the relationship between the mining company and the local community is often tense. Here the negative impacts have to do with quality of life issues.

Legislative Framework includes: a) applicable laws, b) exploration/mining rights regulatory approach, c) exploration and mining application priority, and d) security of tenure.

Exploration and mining application priority – In the past, national geological surveys performed geologic research, conducted exploration, and collected mineral information that was used by mining authorities. This information is insufficient for current uses and is mostly out of date due to a lack of resources to fund these agencies. Investments are going into mining operations and social programs; very little is being invested by governments in exploration. Countries in Eastern Europe have not formally identified areas with high mineral potential for exploration that could and lead to the tendering of mining rights and subsequent exploitation. In cases where mining authorities have little or no information on mineral wealth, areas are chosen by industry and investors and proposed to mining authorities for development.

Security of tenure - Security of tenure is less assured now by mining policies and legislation than was the case in the past. Other policies are taking precedence, such as those related to environmental protection and the management of other natural resources. Security of tenure is also endangered also by pubic opposition to mining. Public opposition is two-fold: concern about environmental protection, and opposition to foreign exploitation of countries' natural wealth. And as is the case in many parts of the world, legal license to mine is no longer adequate to ensure tenure. Social license to mine is also necessary and that is granted by the public rather than the state (Shields et al. 2006).

Regulatory agencies are a) governmental agencies or organizations mandated for b) mineral information.

Information availability - Official mineral information is obtained from government agencies. Some countries have official information support organizations such as geological surveys or mining institutes. Reporting of minerals and mining information both obligatory and voluntary. Obligatory information is typically related to mineral pro-

duction and economic reserves, and is collected annually. Voluntary information collection usually relates to specific projects and is collected over the duration of the project. Support organizations also collect and disseminate other data such as research results. Much existing mineral information is neither adequate nor sufficient for the needs of policy makers, land managers, investors, NGO's, and the general public.

CONCLUSIONS

Policies are typically judged on their cost-effectiveness, equity, administrative flexibility and feasibility, and efficiency. These criteria interact and also vary in importance depending upon the issues being addressed (Sterner, 2003). A more over-arching criterion against which to judge a policy is the degree to which it facilitates achievement of societal goals. Granted, the legislation codifying policies may inadequately capture the policy intent; the regulatory frameworks may encourage behavours that are at odds with the original goals; and the implementing and enforcing agencies may have their own conflicting, or at least different, agendas. All that not withstanding, the fundamental question is whether a policy has the potential to generate desired outcomes. This is not a simple question to answer. Policies intended to produce a specified result almost always have other results as well. Sometimes pursuing one goal precludes reaching another. But, sometimes the policy is simply insufficient to the task or poorly crafted.

The countries of Eastern Europe are going through a period of major changes. Their economies are transitioning toward free markets and ten have already joined the EU. A process of policy revision is ongoing. Regarding minerals, governments main function is promulgating policies and facilitating mineral resource management in ways that are consistent with general and specific societal objectives. The goals of interest here are mineral sector competitiveness, minerals availability and sustainable development. Unfortunately, some of the policies currently being implemented are inconsistent with the precepts of free markets, will hamper the country's ability to achieve other goals, or are in conflict with the principles of sustainable development. The examples below are representative of these problems.

Policies protecting national mineral wealth and precluding exports are inconsistent with EU goals of greater economic integration. Mining companies diversify sources of supply as a means of improving their reserve position and as a protection against supply interruptions, i.e., so as to ensure mineral availability. If countries limit the free flow of materials they limit minerals availability.

Policies that insist on the utilization of domestic resources, or that promote self sufficiency, may decrease the likelihood of supply interruptions at the potential cost of producing a resource that is neither the most economically efficient nor the least environmentally damaging. Such an outcome is inconsistent with both goals of competitiveness and sustainability.

Infrastructure reconstruction and expansion is occurring in all transition economies, but to date policy revisions have largely focused on metallic and industrial minerals. Minimal effort has been put into developing policies for construction materials. This situation will make achieving the EU's goals for sustainable transport even more challenging. Moreover, mineral policies in isolation will not ensure availability of aggregates needed for transportation infrastructure**.** Only by comprehensively addressing the interactions of the minerals sector with other sectors will nations be able to ensure adequate supply. This is not currently being done.

Mineral policies in Eastern Europe as they now stand will not ensure adequate and sufficient mineral supply provided in a manner that is consistent with sustainable development principles. There is a need for new mineral policies that are consistent with EU legislation and directives covering a vast multitude of topics. This process will necessarily be different for each country. Despite the fact that significant political, economic, technological and social obstacles will need to be overcome, there is a clear call for a minerals policy framework on the EU level and minerals policy on member state level.

Paper was presented in Sarajevo, BIH, at the "5th Pan-European Conference on Planning for Minerals and Transport Infrastructure: the way forward!" in May 2006.

References

Allegre, M. 1991: The EEC mining industry: where and how to develop. Erzmetall, *44(7-8)*, 357-363.

Anciaux, P. 2005: The importance of a skilled workforce for a competitive extractive industry in Europe. European Commission. DG Enterprise and Industry – Unit I.2, Steel, non-ferrous metals and other materials. Presentation at TAIEX Workshop – EFG. 26-27 October, 2005, Brussels.

Auty, R. 2003: Natural resources, development models and sustainable development. IISD Environmental Economics Programme, Discussion Paper 03-01. IISD: Winnipeg. World Wide Web Address: http://www.Iied.org/eep

Bringezu, S. 2002: Towards Sustainable Resource Management in the European Union. Wuppertal Papers no. 121. Wuppertal Institut fur Klima, Umwelt, Energie: Germany.

Carpenter, A. S. 2005: Issues That Affect the Competitiveness of America's Mining Industry. Testimony to the House Resources Sub-Committee on Energy and Mineral Resources Oversight Hearing „. Improving the Competitiveness of America Mining Industry". Washington, DC. 28 April, 2005.

European Union, 2000: Communication from the Commission: Promoting sustainable development in the EU non-energy extractive industry. COM (2000) 265 Final. Commission of the European Communities: Brussels.

European Union, 2001: Communication from the Commission to the Council and the European Parliament: A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development. COM (2001) 264 Final. Commission of the European Communities: Brussels.

European Union, 2005a: Communication from the Commission to the Council and the European Parliament: Working together for growth and jobs - A new start for the Lisbon Strategy. COM (2005) 24 Final. Commission of the European Communities: Brussels.

European Union, 2005b: Omunication from the Commission to the Council and the European Parliament: On the review of the Sustainable Development Strategy. COM (2005) 658 Final. Commission of the European Communities: Brussels.

European Union, 2005c: Communication from the Commission to the Council and the European Parliament: industrial. COM (2005) 474 Final. Commission of the European Communities: Brussels.

Gasiuniene, V. E. 2000: State Mineral Resource Policies. Written presentation at the NATO Advanced Research Workshop "Sustainable Mineral Resource Management in Karst Areas". Portorož, Slovenia.

Gibson, R., Hassan, S., Holtz, S., Tansey, J. & Whitelaw, G.2005: Sustainability Assessment: criteria and processes. Earthscan: London.

Hewett, E. 1980: Alternative econometric approaches for studying the link between economic systems and economic outsomes. J. Comparative Economics, *494*, 274-294.

Land Use Consultants, EURONET, and Widnell Chartered Suveyors, 1994: Mineral Planning Policy and Supply Practices in Europe. United Kindom, Dept. of Environment: London.

Lisbon European Council, 2000: Presidency Conclusions. Available at: http://www.bolognaberlin2003.de/pdf/PRESIDENCY_CONCLUSIONS_Lissabon.pdf#search=bsbon%20european%20spring%20council

Mikesell, R.F. 1987: Non-fuel Minerals - Foreign Dependence and National Security. University of Michigan Press: Ann Arbor.

Otto, J. 1997: A National Mineral Policy as a Regulatory Too Resources Policy, *23*: 1-7.

Otto, J. 1999. Mineral policy, legislation and regulation. Mining, Environment and Development. A Series of Papers for UNCTAD. Advanced Copy. UNCTAD, New York.

Scheffold, H.M. 1997: The Non-Fuel Mineral Position of the European Union. Doctoral Thesis. Centre for Energy, Petroleum & Mineral Law & Policy. University of Dundee.

Shields, D.J. & Šolar, S.V. 2004: Sustainable mineral resource management and indicators: case study Slovenia. Geological Survey of Slovenia, Ljubljana.

Shields, D., Šolar, S.V. &, Langer, B. 2006: Sustainable Development and Industrial Minerals. p. 65-74 In: Kogel, J.C., Trivedi, N.C., Barker, J.M. and. Krukowski, S. T. Industrial Minerals and Rocks, 7th Edition. Society of Mining, Metallurgy and Exploration: Denver.

Shields, D., Šolar, S. V. &. Martin, W. 2002a: The Role of Values and Objectives in Communicating Indicators of Sustainability. Ecological Indicators, *34*, 1-13.

Shields, D., Šolar, S.V., Martin, W. & Martin, I. 2002b: Conflicting objectives for mineral resource management: the case of aggregate quarries in Slovenia. p. 33-40 In: CICCU, Raimondo (ed.). Environmental issues and waste management in energy and mineral production: Proceedings SWEMP 2002, 7-10 October, 2002. Cagliari, Italy.

Sterner, T. 2003: Policy Instruments for Environmental and Natural Resource Management. Resources for the Future: Washington, D.C.

The European Evaluation Consortium (TEEC) 2006: Evaluation of the žCommunication on Promoting sustainable development in the EU non-energy extractive industry'. Draft of Final Report - Executive Summary.p 16. The Evaluation Partnership Limited (TEP). Middlesex. United Kingdom.

Wagner, H. (ed.). 2004: Study of Minerals Planning Policies and Supply Practices in Europe. Department of Mining and Tunnelling. University of Leoben. Austria.

Internet:

European Union (EU) 2005: Available online at: (http://europa.eu.int/comm/environment/eussd/)

European Union (EU) 2006: Available online at: (http://europa.eu.int/comm/sustainable/welcome/index_en.htm)