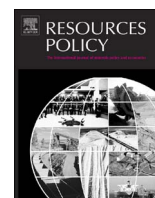




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# The qualification process of mining projects in environmental impact assessment: Criteria and thresholds



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## ABSTRACT

The aim of the article is to compare the qualification process of the environmental impact assessment (EIA) applied for mining projects in the Visegrad Group countries (V4). Poland is a major producer of copper and silver, the Czech Republic produces kaolin and uranium, Slovakia – magnesite and Hungary – bauxite. Despite significant differences in mineral reserves in the mentioned countries, mineral deposits are treated as important natural resources that are the basis for development of power industry, construction industry and other various industrial branches. The paper determines importance of the qualification in the EIA procedure. In the next part, criteria and thresholds of the qualification of the EIA procedure resulting from division of projects depending on the possibility of significant environmental impact have been described. It has been shown that there are large differences in thresholds which qualify mining projects in the discussed countries to the EIA procedure. In comparison with the European Union EIA Directive, the V4 countries have more detailed (expanded) division of qualification criteria. Slovakia is the best example when concerning division of projects into particular types, while Polish solutions present the most detailed set of qualification criteria. In the Czech Republic, any new mining project is the subject to the mandatory EIA procedure, and in Hungary they are always the subject to the screening stage. Exploration works are the subject to the qualification process only in Poland and Hungary. They are based on such parameters as the depth of a given borehole and occurrence of other protected resources (groundwater, animated nature, etc.). The criteria and thresholds for the selection of projects that may potentially have significant impact on the environment also considerably differ in the degree of details and even units. The authors raise the question whether it is intentional or accidental, emphasising that the lack of precision in this area makes exploitation of mineral resources more complicated. It should be also emphasised that the EIA procedure is one of the most important instruments of environmental management allowing to achieve sustainable economic development.

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## 1. Introduction

The Visegrad Group (V4) is an informal alliance of four Central European countries: Poland (PL), Slovakia (SK), the Czech Republic (CZ) and Hungary (HU) which goal is to develop cooperation between the Member States in the field of spatial integration, including the common interest investments and harmonisation of development of the areas of the countries (Gałaś et al., 2015). The V4 countries underwent political and economic transformation in the same time and all joined the European Union (UE) in 2004. Economic situations in the analysed countries are similar, the average volume index of GDP per capita in PPS<sup>1</sup> in the V4 countries is at the

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<sup>1</sup> Gross domestic product (GDP) is a measure for the economic activity. The volume index of GDP per capita in Purchasing Power Standards (PPS) is expressed in relation to the European Union (EU28) average set to equal 100. If the index of a country is higher than 100, this country's level of GDP per head is higher than the EU average and vice versa (Eurostat, 2016).

level of 74.5 in relation to the EU average, with the highest volume in the Czech Republic (85) and the lowest one in Hungary (68) (Eurostat, 2016, as of 2014),

Economic importance of mining industry varies in the V4 countries. In Poland and in the Czech Republic, it is a very important branch of industry and mineral resources play a significant role in development of the whole country economy. In Slovakia and Hungary, extraction of minerals covers the countries needs only partially, hence, it is necessary to import raw materials.

Poland is an important producer of hard coal and lignite, copper, silver, zinc, lead and many other non-metallic raw materials, such as cement, aggregates, salt, sulphur, limestones, lime and gypsum. Mining and quarrying accounted for about 2.2% of the GDP country's (USGS, 2014b, as of 2012). The highest export value is held by petroleum products, copper and coke. KGHM Polska Miedź S.A. is the eighth producer of copper and the leader, holding the first place, in production of silver in the world (World Silver Survey, 2014, A Summary). Mining activity brings in result

significant impact on the environment. In 2010, the mining industry produced 53.7 million tonnes of waste products and the total amount of dumped wastes was equal to 1.8 billion tonnes (CSO, 2016).

Mining also plays a relatively important role in the economy of the Czech Republic. The country is a major producer of kaolin (the fifth place in the world), feldspar, bentonite and industrial (silica) sand. Coal, coke and steel are the mineral commodities that are most important for the country's domestic and regional markets. In the Czech Republic, other mineral commodities produced included cement, sand and gravel, dolomite, garnet, gypsum and natural gas. Apart from that, the country is also a major producer of uranium, the Rožná deposit is currently the only exploited deposit of uranium in the European Union. The mining and quarrying sector made up about 1.04% GDP (USGS, 2014a, as of 2012).

Slovakia produces a modest range of mineral products, which play an important role and they are also the basis for production in steel, electrical, chemical, construction, glass and ceramics industries, as well as in other industrial sectors. The country is a producer of metal products: aluminium, steel and certain industrial minerals, including cement, dolomite, lime, and magnesite and brown coal, including lignite, as well. Slovakia is dependent on foreign imports to meet most of its domestic demand for minerals. Mining and quarrying of minerals made up about 0.6% of the GDP (USGS, 2014c, as of 2012).

In Hungary, the mining industry is not a key sector of the economy. In the country, there are producers of crude construction materials, including aggregates, crushed rock, dimension stone, gravel and sand and other metallic minerals, including gallium and manganese. Hungary is estimated to be the fifth ranked producer of perlite. Production of bauxite and alumina may only be of some importance on the European market. In 2012, the value of production of the mining and quarrying sector accounted for 0.35% of the GDP (USGS, 2013, as of 2012).

Resources and exploitation of selected types of minerals in the V4 countries are presented in Table 1, which is prepared on the basis of the data obtained from the state geological surveys. As it can be seen, mineral resources in Poland are usually greater than the resources in the other countries.

Mining, depending on various factors (geology, types of minerals, methods of operation, etc.), usually causes partial or complete transformation of the land, landscape, water regime, soil and water degradation, destruction of valuable natural areas and loss of other natural resources. This often leads to a reduction of people's life quality and comfort. Therefore, the mining activity is the subject to an obligatory environmental decision, resulting from the procedure of environmental impact assessment, prior to obtaining operation permits (licences for exploration, mineral exploitation) (Paulo and Gałaś, 2006; Appiah and Osman, 2014; Pietrzyk-Sołulska et al., 2015).

Environmental impact assessment (EIA) is the procedure required by regulations of the EIA Directive (Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, codified by Directive 2011/92/EU of 13 December 2011 and amended by (Directive 2014/52/EU) of 16 April 2014. Permission to launch a project which is likely to have significant impact on the environment may be granted only after the EIA. This assessment consists of four basic stages relating to (Kasztelewicz and Ptak, 2009): (1) qualification of the project according to the applied criteria and thresholds, (2) determination of the scope of the report (scoping), (3) obtaining opinions and agreements required by the EIA Directive, and (4) providing opportunities for public participation in the procedure.

The EIA procedures constitute the basic element of the environment protection policy in all EU countries. Actually, they also

**Table 1**

Total resources and production of selected types of minerals in the V4 countries (as of 31.12.2012), simplified (The Balance of Mineral Resources Deposits in Poland as of 31.12.2012; Slovak Minerals Yearbook, 2013; <http://www.mbfh.hu/home/html/index.asp?msid=1&sid=0&hkl=72&lng=1>, 2014; Mineral Resources of the Czech Republic, 2013).

Types of minerals (1)	Country (2)	Total resources (3)	Annual production (4)
<b>Carbon black</b> (million tonnes)	PL	48,225.61	71,339.00
	SK	8,006.00	–
	CZ	16,324.26	10,796.00
	HU	1,625.14	–
<b>Brown coal (including lignite)</b> (million tonnes)	PL	22,583.83	64.29
	SK	1,082.04	2.10
	CZ	8,936.16	43.71
	HU	8,929.88	9.29
<b>Uranium</b> (tonnes)	PL	–	–
	SK	19,452.00	–
	CZ	132,214.00	222.00
	HU	26,769,000.00	–
<b>Crude oil</b> (million tonnes)	PL	24.96	0.66
	SK	10.16	0.01
	CZ	30.89	0.15
	HU*	635.98	0.66
<b>Natural gas</b> (million m <sup>3</sup> )	PL	137,838.52	5,619.68
	SK	24,480.00	93.00
	CZ	30,506.00	204.00
	HU*	4,511,216.12	2,442.59
<b>Copper ore mine production</b> (million tonnes)	PL	2,623.51	30.18
	SK	532.49	–
	CZ	0.05	–
	HU	781.17	–
<b>Dolomite**</b> (million tonnes)	PL	342.61	2.92
	SK	694.44	1.47
	CZ	527.22	0.44
<b>Kaolin**</b> (thousand tonnes)	PL	212,910.00	249.00
	SK	59,771.00	3.00
	CZ	1,194,922.00	3,318.00
<b>Sand and gravel</b> (million m <sup>3</sup> )	PL	18,105.02	184.70
	SK	489.22	5.04
	CZ	4,199.49	10.44
	HU	4,392.34	11.77

\* Including non-conventional resources.

\*\* No data for HU.

constitute the most important tool which is applied to help preserve the environment, sustainable use of resources of the environment and the quality of life when projects are planned and carried out.

One of the crucial points of the procedure is the stage of qualification of projects for the EIA considering their environmental impact. In accordance with the requirements of the EIA Directive concerning qualification of projects to environmental impact assessment, two groups of projects have been determined in the V4 countries. Group I (Annex I of the EIA Directive) includes projects which are always likely to have a significant impact on the environment and for which the EIA procedure is mandatory ("the mandatory list"). Legal acts in the Member States must take it into account in their national legislation. In case of projects which

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