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# Prioritization of Source Data Necessary for the Valuation of Real Estate with Mineral Deposits: The Case of Poland

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## Abstract
Real estate valuation with mineral deposits in Poland can be conducted using comparative, income, and cost approaches. When determining the value of such real estate, a property valuer must obtain information from multiple sources. These sources not only help to establish the legal status but also allow for determining the type of geological and mining asset of the deposit, characterizing and assessing the quality of the deposit, describing the deposit's resources, and evaluating the exploitation potential. Analysis of the source documentation also enables the assessment of the environmental state post-exploitation and helps determine the external conditions related to the liquidation of deposits after exploitation. The need to include the above information in the appraisal report requires the property valuer to gather a large amount of source information scattered across private and institutional resources. Therefore, this study aims to identify and prioritize the source data necessary for the valuation process of land properties with mineral deposits in Poland using selected business techniques. As part of achieving the research goal, the method of valuing the subject special property will be recognized, and the source materials will be identified. Their prioritization will be performed using two business techniques: the MoSCoW method and the Action Priority Matrix. In the final stage of the study, utility classes of the source materials for the valuation of the subject property will be developed.

## Keywords
valuation, special property, mineral deposit, source documentation, business technique, MoSCoW, Action Priority Matrix, Poland.

## Introduction

The current definition of real estate stems from the Civil Code Act of April 23, 1964, and is contained in Article 46, according to which "real estate consists of parts of the Earth's surface that are a separate object of ownership, referred to as land, as well as buildings permanently connected to the land or parts of such buildings (premises), if under special regulations they constitute a separate object of ownership from the land" (Act, 2023c). Thus, we can distinguish land real estate, building real estate, and premises real estate. Land real estate is a portion of the Earth's surface that is distinguished in terms of ownership. It includes the ownership rights to the land and the land's integral components, which include buildings and other structures permanently attached to the land, standing water, trees, and other plants from the moment of planting or sowing, and minerals found "within" the land property (Act, 2023b). The real estate market is an open, complex, and dynamic system that responds to changes in the surrounding economic, legal, or social conditions (Cellmer, Bełej, Cichulska, 2019). Therefore, it requires a detailed and increasingly automated cognitive process (Renigier-Biłozor et al., 2022a; 2022b). The concept of real estate has been defined by various scientific fields. The economic concept treats real estate as physical capital, the creation of which requires the engagement of financial capital. In this concept, resource utilization efficiency, which affects the value of capital invested in real estate, is important (Kucharska-Stasiak, 2022). This efficiency depends, among other things, on the function performed by the real estate, the manner of development, and ownership relations from an economic perspective (Kucharska-Stasiak, 2016). Therefore, in managing land real estate, the concept of good governance can be applied (Klimach, Dawidowicz, Źróbek, 2018).

Real estate can serve various functions, such as residential, industrial, and transportation. A separate category comprises special-purpose properties. As Cymermann (2019) notes, the term "special" pertains to the functional classification of properties, indicating that the property possesses features or is used for purposes that are not common but special. Special-purpose properties are thus atypical and often require a distinct approach to their valuation, and they are seldom subject to valuation (e.g., churches, historic buildings, hospitals, military facilities, prisons, airports, national parks, ice rinks, cemeteries, landfills, sewage treatment plants, etc.). Among the surface special-purpose properties with high alternative use and very rare occurrences on the market are land properties with mineral deposits (Cymermann, 2019).

Geological and mining assets include mineral deposits, anthropogenic deposits or their parts, and associated intangible and legal values (including geological documentation of the deposit or the right to geological information, deposit management projects, concession documents), fixed assets (e.g., mining excavations, construction facilities, and related technological processing facilities and devices), movable assets (machines and equipment, raw materials and materials), securities, and financial resources (Kovanič et al., 2013; Kovanič et al., 2021; Kovanič et al. ,2024; Kovanič et al. 2021; Nieć, 2010). According to Article 6 of the Geological and Mining Law of June 9, 2011 (Act, 2023a), a mineral deposit is a natural accumulation of minerals, rocks, and other substances whose extraction may bring economic benefits. Except for the deposits listed in Article 10, paragraphs 1 and 2 of the Geological and Mining Law (such as hydrocarbon deposits, hard coal, methane occurring as an accompanying mineral, brown coal, metal ores except for bog iron ores, native metals, radioactive element ores, native sulfur, rock salt, potassium salt, potassium-magnesium salt, gypsum and anhydrite, precious stones, rare earth elements, noble gases, hydrogen, regardless of their location, as well as therapeutic waters, thermal waters, and brines), mineral deposits are integral parts of land properties and are subject to their ownership rights (Act, 2023a). The aforementioned legal provision distinguishes between mineral deposits owned by the State Treasury and other deposits subject to land property ownership rights. This article focuses on mineral deposits subject to land property ownership rights.

As Glapa (2019) notes, the valuation of mineral deposits can be performed for various purposes, including market transactions of buying and selling deposits, determining compensation for establishing mining use for a deposit owned by the State Treasury, setting rental rates for deposit use or land use on its surface, covering contributions in the form of a deposit for shares in a company aimed at its exploitation, securing bank loans against the collateral of a deposit related to land property, or determining the amount of compensation for expropriation of land properties related to mineral deposits. According to current Polish law, real estate valuation with mineral deposits can be conducted using the comparative, income, and cost approaches. Łopato (2019) suggests that property valuers prefer the comparative approach, while property buyers are more interested in the income approach because it allows them to assess the profitability of an investment project. Due to the rarity of land properties with mineral deposits, which are considered special-purpose properties, several valuation challenges arise, as detailed by Cymermann (2019). One such challenge is the difficulty in finding similar properties that serve as the basis for determining market value using the comparative approach. These properties are rare on the market, and even if they exist, they may not contain mineral deposits of similar characteristics, size, and quality as those being appraised. Another issue is that these properties are often not subject to lease, which eliminates the possibility of using the income approach for their valuation. Furthermore, determining the boundary of the mineral deposit itself as a component of the land property can be problematic because its boundary often does not align

with the property boundaries. Therefore, the valuation of such properties is complex and requires the application of special techniques and methods.

Regardless of the chosen valuation approach, the quality of the appraisal report heavily depends on the source data quality. **Therefore, the aim of this study is to identify and prioritize source data necessary for the valuation of land properties with mineral deposits in Poland using selected business techniques (MoSCoW method and Action Priority Matrix).** Achieving this goal required understanding the valuation methods for land properties with mineral deposits in Poland, detailed identification of source materials essential for the valuation process, and conducting a qualitative assessment of these materials using document analysis and critique methods. The prioritization of source materials was carried out using the specified business techniques.

## Methods of research

Valuation of real estate with mineral deposits (i.e., special-purpose properties) is a complex issue that requires gathering information from multiple sources. Identifying and evaluating these sources first involves recognizing the applicable methods and techniques for valuation. The next step is identifying and characterizing source data using document analysis and critique methods. Subsequently, the importance of this data is classified using a compilation of two business techniques: the MoSCoW method and the Action Priority Matrix. The final step of the research process will involve attempting to develop utility classes for source materials to facilitate valuations of land properties with mineral deposits in Poland. The scope of the research stages is presented in Figure 1.

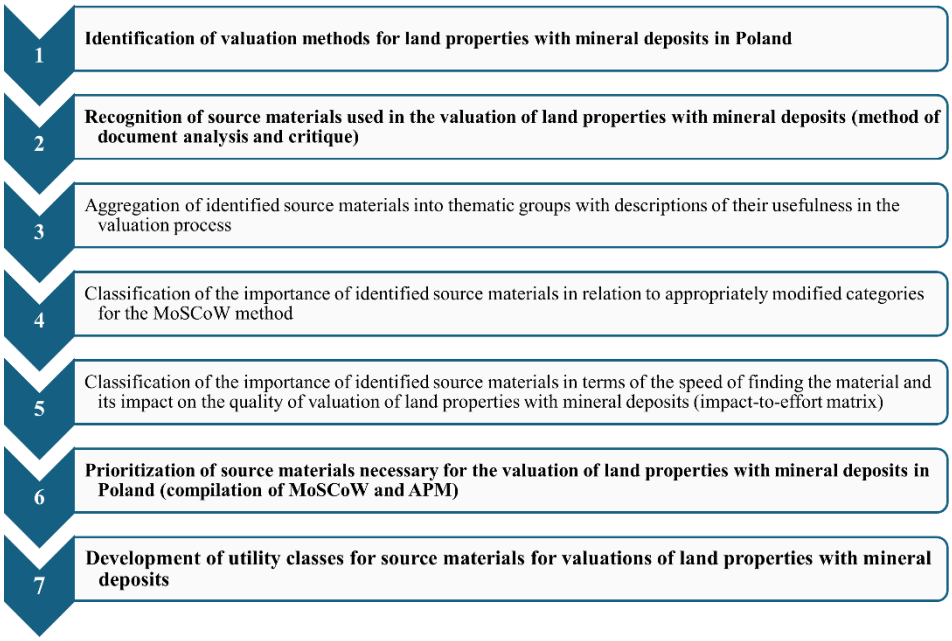


*Fig. 1. Scheme of the research. Source: own study.*

## Identification of valuation methods for land properties with mineral deposits in Poland

In Poland, the principles for valuing real estate located on mineral deposits have been broadly formulated in the Regulation of September 5, 2023, concerning real estate valuation (Regulation, 2023a), particularly in §§66 and 67. According to §66, when determining the value of real estate situated on mineral deposits owned by the State Treasury, the value of these deposits is not taken into account. However, §67 specifies that for real estate situated on documented mineral deposits, covered by the right of ownership of the land property, the value of these deposits is considered - and these have become the subject of further considerations.

In the valuation of land properties with mineral deposits, in addition to a certified property valuer (referred to as a mineral deposit appraiser), an expert is required who has at least five years of experience in at least one of the listed fields (mining, geology, geoenvironmental engineering, geophysics, surveying, environmental protection, economics) and possesses appropriate experience for the type of geological and mining assets being valued (POLVAL, 2019). The valuation of mineral deposits should employ more than one approach, and the final value should be indicated as the most appropriate value for the subject and purpose of the valuation, with justification for the choice.

For the valuation of properties with mineral deposits, one can apply the comparative approach, income approach, and cost approach, the use of which is defined in several independent source documents. The first is the Regulation of September 5, 2023, concerning real estate valuation (Regulation, 2023). The second is the National

Specialist Valuation Standard (Krajowy Standard Wyceny Specjalistyczny) KSWS: Valuation of land properties with mineral deposits covered by land ownership (KSWS, 2016). The last is an approach described in Article 152(2) of the Act of August 21, 1997, on real estate management (Act, 2023b), as well as in the POLVAL Code (POLVAL, 2019).

According to the regulation (Regulation, 2023a), when using the comparative approach, transaction prices obtained for similar properties located on mineral deposits are considered, especially those of the same type with similar deposit richness and geological structure. When applying the income approach using the profit method, the income from the property is assumed to be equal to the property owner's share of the profits earned by the entrepreneur from the exploitation of the deposit on such properties. When determining the value of the property to establish compensation for obtaining the right to possess the property necessary for the exploitation of the deposit, the value of the property is determined according to its condition before the deposit exploitation and according to the anticipated condition of the property after the deposit exploitation, using prices as of the date of the valuation report. In determining the value of the property after the deposit exploitation, a comparative approach is used (in the case of complete depletion of the deposit) or an income approach (if part of the minerals remains in the deposit and their exploitation is economically justified). The remaining deposit's richness after exploitation is determined based on inventory reports of mineral resources. In determining the value of the property, the incurred costs of quarry reclamation are not considered, but the value of assets created as a result of reclamation is included. During all activities related to the valuation process of real estate with mineral deposits, the findings contained in the geological documentation of the deposit, the development plan of the deposit, the concession for mineral extraction, the local spatial development plan, and the study of spatial development conditions and directions of the commune, as well as data from the mineral resource inventory and the surveying-geological documentation of the deposit, are taken into account (Regulation, 2023a). On the other hand, the National Specialist Valuation Standard (KSWS, 2016) recommends determining the market value of land properties with mineral deposits based on the state of the deposit. The state of the deposit, in this case, necessitates the use of a specific valuation approach, including the stage after identification and documentation of the deposit (comparative approach), the stage of exploitation and use of the deposit, as well as suspended exploitation (income approach), the stage of suspended exploitation of the deposits (income or comparative approach), and the stage of mining facility liquidation and reclamation (comparative approach or mixed approach – liquidation cost method and residual method).

A key aspect for properties with mineral deposits is determining what the property is without the mineral deposit, meaning a property without a documented mineral deposit. It should be noted that land without a documented mineral deposit will never be designated in the local spatial development plan for surface exploitation areas. Conversely, the transaction price of a property designated in the local plan for surface exploitation areas (i.e., with a documented mineral deposit) will include the price of the mineral deposit component (an exception applies to properties with depleted mineral deposit resources at the stage of reclamation or after the reclamation process is completed).

From the perspective of the comparative approach, in addition to prices, it is necessary to obtain specialized source data for valuation, allowing for the examination of the significance of attributes and the construction of a gradation scale for selected differentiating features (indicated by the legislator as the minimum similarity). Therefore, the following terms from §67 point 2 of the aforementioned regulation need clarification:

- the location of properties/lands over deposits of the same type of minerals (which will allow for the correct comparison of types of minerals, e.g., sand and gravel deposits with other similar deposits such as sands and gravels, but not, for example, with clays, blocky igneous rock deposits with similar, also blocky igneous rocks, etc.),
- geological structure of the deposit – understood as deposits with a regular, layered structure, unaffected by tectonic disturbances, which is significant in calculating the extraction costs of the mineral,
- richness, that is, the amount of resources (limited to industrial or operational) per unit of area, thickness, or volume depending on the type of mineral, e.g., ha, m, $m^2$, or $m^3$.

However, these characteristics are insufficient for properly valuing properties with mineral deposits. It often happens that despite meeting the above criteria, the deposit turns out to be of low quality or environmental conditions prevent any exploitation, and the decision – a concession – is never granted. Therefore, in the valuation process, it is necessary to obtain other information and consider at least two additional important features affecting the value of a property with a mineral deposit, namely:

- quality parameters of the deposit,
- environmental conditions related to the absence of restrictions on mining activities, allowing for obtaining a concession for mineral extraction.

It is proposed to adopt the following criteria for the assessment and description of conditions accompanying mineral properties, using a compilation of the comparative, income, and cost approaches, as referred to in Article 152, paragraph 2 of the Act of August 21, 1997, on real estate management and the developed classification of

geological and mining assets contained in the POLVAL Code (2019). This code introduces the division of geological and mining assets into types, and in the subject literature (POLVAL Code 2019, Pietkiewicz 2019), one can find a proposed procedure for deposit valuation, which is as follows:
1. Type I (when geological and exploration work is ongoing) – a comparative approach. Due to the zero or initial state of deposit documentation and development and the relatively low price level of concluded transactions, similar to agricultural/forestry land prices, it should be assumed that the transaction price does not include the value element of the deposit.
2. Type II (in the stage of exploration and documentation of the deposit, no environmental decision and concession) – comparative or cost approach. In this case, it can be assumed that the value of the deposit constitutes the difference between the transaction price of such land and the cost of acquiring agricultural land with similar land classes, increased by the costs of documenting the deposit proportionally to the given land area.
3. Type III (in the phase of project planning and deposit development) – comparative or cost approach. The value of the deposit constitutes the difference between the transaction price of such land and the cost of acquiring agricultural land with similar land classes, increased by the costs of documenting the deposit as mentioned above and the costs of other studies and documentation, depending on the advancement of the mining project.
4. Type IV (in the phase of deposit exploitation) – income approach. It should be assumed that the transaction price includes the value element of the deposit, and its level directly results from the income that can be obtained from the exploitation of the deposit and the sale of finished products. The value of the deposit as a component part should be determined exclusively by the income approach, which uniquely allows for the consideration of virtually all market aspects in the valuation process of the deposit component, such as:

- quality of the deposit and the related market price achievable,
- possible scale of exploitation, including the permissible method of mineral extraction,
- operational costs of deposit exploitation,
- size of operational reserves,
- amount of necessary investments required to achieve income,
- available capital and financing conditions for investments,
- competitive environment determining the scale and method of operation,
- geographical rent of the deposit,
- risks associated with the mining venture.

When choosing the income approach, the valuation method appears quite straightforward, as the source of income is the deposit, more precisely, the commercial products that can be obtained from it. The valuation should not pose a significant problem, provided that the structure of potential revenues and costs related to generating income is correctly identified. The most commonly used method is the profits method, specifically the discounting cash flows (DCF) technique. Of course, there is the issue of risk magnitude in mining projects – this topic has been addressed by Uberman and Uberman (2005), who described the estimation of the risk rate in mining investments, including using the Arbitrage Pricing Theory (APT) model 5. Type V (in the liquidation phase of exploitation, with a decision issued on the direction of reclamation) – comparative or cost approach. Due to the state of resource exhaustion or the accounting of remaining resources and their classification as off-balance, it should be assumed that the transaction price does not include the value element of the deposit and is close to or below the prices of agricultural/forestry land.

The methodology presented in the literature (KSWS 2016, Kodeks POLVAL 2019, Pietkiewicz 2019), based on the valuation methods described in the Act of August 21, 1997, on real estate management (Act, 2023b) and the Regulation of September 5, 2023, on property valuation (Regulation, 2023a), requires the valuer to conduct a detailed analysis of source materials for the comparative, cost, and income approaches.

## Materials

The regulations governing real estate valuation in Poland provide significant flexibility to property valuers in selecting the sources they use to determine property value (Sokół and Sobolewska-Mikulska, 2023). The determination of property value is based on subjective assessments (Kucharska-Stasiak, 2022). However, in the valuation report (also referred to as the appraisal report), it is essential to include all necessary sources that allow for the calculation of the mineral deposit value using the comparative, income, and cost approaches (Bieda et al., 2018). The report should include a description of the location of the geological-mining asset, access to the deposit, and existing infrastructure. It should define the legal status of the geological-mining asset and provide data on the resources it comprises. This requires an analysis of various studies that determine the state of the resources, particularly geological and operational (and/or exploitable) resources. Geological resources refer to the total quantity of the mineral in the deposit. Balance resources are the deposit's resources or parts of it specified in geological documentation, whose natural characteristics determined by balance criteria and occurrence conditions allow for their exploitation. Industrial resources are part of the balance or non-balance resources that can be

economically exploited. Operational resources are the industrial resources of the mineral, reduced by total extraction losses. The valuation report must also include a characterization of the quality of the mineral deposit and the process of its exploitation and processing (including metallurgical processing). A crucial element is the description of planning and environmental conditions (Krajewska, 2017) and the impact of mineral deposit exploitation on the state of the environment. The valuation report must identify sources of uncertainty and types of risk. It should describe the economic-financial, organizational-technical, and social conditions of exploitation cessation, along with an assessment of the possible errors in their estimation (Act, 2023a; Regulation, 2015). Incorporating this information into the valuation report requires the property valuer to gather and analyze numerous source materials, which are categorized into six thematic groups (Table 1), including:

- group 1: formal and legal materials (related to the approach taken, the object and purpose of the valuation),
- group 2: materials determining the legal status of the mineral deposit,
- group 3: materials that determine the quality of the mineral deposit, the status of the resource, and the possibility of mining and processing,
- group 4: materials defining the location and accessibility to the mineral deposit,
- group 5: materials identifying environmental conditions and site development,
- group 6: materials related to the valuation approach adopted (comparative, income, and cost approaches).

*Table 1. Division of source materials necessary in the prose of valuation of real estate with mineral deposits. Source: own study.*

| Group of source materials | Title of Compilation |
|---|---|
| Legal and Formal Materials | 1. Act of June 9, 2011, Geological and Mining Law<br>2. Regulation of the Minister of the Environment of July 1, 2015, on geological documentation of mineral deposits, excluding hydrocarbon deposits<br>3. Act of August 21, 1997, on real estate management<br>4. Regulation of the Minister of Development and Technology of September 5, 2023, on real estate valuation<br>5. Civil Code of April 23, 1964<br>6. National Specialized Valuation Standard (KSWS): Valuation of land properties with mineral deposits included in real estate ownership<br>7. POLVAL Code. Polish Association for Mineral Deposit Valuation, Kraków<br>8. Interpretative Note: Application of the comparative approach in real estate valuation<br>9. Interpretative Note: Application of the income approach in real estate valuation |
| Materials Determining the Legal Status of the Mineral Deposit | 1. Land Register<br>2. Land and Mortgage Register<br>3. Act of June 9, 2011, Geological and Mining Law<br>4. Geological documentation of the mineral deposit<br>5. Notarial deed of acquisition<br>6. Other documents establishing legal status |
| Materials Determining the Quality of the Mineral Deposit, Resource Status, and Exploitation Possibilities | 1. Geological documentation of the mineral deposit<br>2. Deposit development plan<br>3. Register of mineral deposit resources<br>4. Concession for mineral extraction from the deposit<br>5. Other geological studies<br>6. Mine operation plan |
| Materials Determining the Location and Accessibility to the Mineral Deposit | 1. Geological documentation of the mineral deposit<br>2. Deposit development plan<br>3. Basic map<br>4. Property inspection<br>5. Spatial data from open geoportals<br>6. Topographic map<br>7. Other cartographic studies from the State Surveying and Mapping Resource |
| Materials Determining Environmental Conditions and Area Development | 1. Geological documentation of the mineral deposit<br>2. Deposit development plan<br>3. Environmental impact assessment decision<br>4. Planning documents at the municipal level<br>5. Planning documents at the regional level |
| Materials Related to the Adopted Valuation Approach | **COMPARATIVE APPROACH**<br>1. Notarial deeds with transaction prices of real estate and the price of the deposit<br>2. Notarial deeds with transaction prices of real estate excluding the deposit price<br>3. Real estate price register<br><br>**INCOME APPROACH**<br>1. Financial statements<br>2. Accounting documents regarding revenues and operating expenses<br>3. Market information on mineral sales prices and operating expenses<br>4. Extraction costs obtained from the user |

| Group of source materials | Title of Compilation |
|---|---|
| | 5. Deposit development plan<br>6. Register of mineral deposit resources<br>7. Business plan<br>8. Data from the Central Statistical Office regarding average market prices<br><br>**COST APPROACH**<br>1. Notarial deeds with prices of agricultural and forest land<br>2. Data from the Central Statistical Office regarding average prices of agricultural and forest land |

In the valuation process of each property, it is necessary to consider a number of legal provisions that regulate its principles. These are formal-legal materials resulting from the adopted valuation approach and the purpose for which it is performed. Among the basic legal acts, constituting Group 1 of source materials, are the following: Act of June 9, 2011, on Geological and Mining Law (Act, 2023a), Act of August 21, 1997, on Real Estate Management (Act, 2023b), Civil Code of April 23, 1964 (Act, 2023c), Regulation of the Minister of Development and Technology of September 5, 2023, on Real Estate Valuation (Regulation, 2023a), Regulation of the Minister of Environment of July 1, 2015, on Geological Documentation of Mineral Deposits, excluding hydrocarbon deposits (Regulation, 2015). These are mandatory data sources for the valuation of land properties with mineral deposits. In addition, other formal-legal materials (methodological sources, valuation standards) that can be included in the valuation process can also be mentioned. They are applied interchangeably, and their selection is the decision of the property valuer and results from the adopted valuation approach. These include National Specialized Valuation Standard (KSWS): Valuation of land properties with mineral deposits covered by land ownership (KSWS, 2016), POLVAL Code Polish Association for Mineral Deposit Valuation, Kraków, Poland (POLVAL, 2019), Interpretative Note: Application of the comparative approach in real estate valuation (Interpretative Note, 2020), Interpretative Note: Application of the income approach in real estate valuation (Interpretative Note, 2014). In total, in Group 1, the property valuer should consider nine compilations.

Group 2: Materials determining the legal status of the mineral deposit. In the valuation process, one of the basic activities is to determine the legal status of the property being valued, which involves checking the entirety of rights pertaining to the property. Primarily, this concerns ownership rights, but it may also include lease rights, tenancy rights, or limited property rights (such as mortgages, easements, usufruct, or liens). A property valuer can determine the legal status of the property using various sources. We include the land register and the land and mortgage register among the mandatory sources. The land register is a public register of land and buildings (objects of the cadastre) and their owners and administrators (entities of the cadastre). This register contains a series of information regarding the identifiers of land and mortgage registers, the location of properties, their boundaries and area, land use classifications, data about property owners, information about entries in the register of monuments, etc. According to Dawidowicz and Źróbek (2018), the land register has a direct impact on increasing the rationality of the real estate market and improving land management efficiency. On the other hand, the land and mortgage register is a public registry that specifies the rights pertaining to a property. In Poland, there is an electronic system for handling land and mortgage registers, and accessing them is free of charge. According to legal regulations (Act, 2023a), a property valuer must determine who owns the mineral deposit. Is it a state-owned mining property belonging to the State Treasury? Or is the mineral deposit covered by ownership rights of the real estate? To answer these questions, the property valuer must analyze the provisions of the Act of June 9, 2011, Geological and Mining Law (Act, 2023a), as well as the provisions of the geological documentation of the mineral deposit. The legal status of the mineral deposit can also be determined based on notarial deeds of acquisition or other documents establishing the legal status, although the land and mortgage register takes precedence.

Another group of materials consists of six studies that inform the property valuer about the quality of the mineral deposit, its resource status, and exploitation possibilities (source materials from Group 3). In this group, the primary source is the geological documentation of the mineral deposit (Regulation, 2015). This documentation presents the results of geological work along with their interpretation. The geological documentation of a mineral deposit is prepared to determine its boundary and resources, assess the extent of their exploration, type, and quality of the mineral, as well as geological-mining and environmental conditions of its occurrence (Jasiński, 2013). This documentation, as detailed by Regulation (2015), specifies:

- type, quantity of balance and non-balance resources, mineral quality, information on accompanying and co-occurring minerals, useful trace elements, and environmentally harmful substances,
- location of the deposit, its geological structure, form, and boundaries, environmental elements, including the state of surface development in its surroundings,
- hydrogeological and other geological-mining conditions of the deposit's occurrence,
- boundary values of parameters defining the deposit and its boundaries.

The geological documentation of a mineral deposit can be divided into four parts, each containing a very detailed description of the analyzed mineral deposit. The first part contains cards and listings, which include an inventory

of geological resources of the mineral deposit, an inventory of extractable methane resources in coal deposits as associated minerals, and an information card for the mineral deposit. This applies to solid mineral deposits and coal deposits containing methane as an associated mineral. The information card of the mineral deposit contains details about the country's mineral resources and related mining topics. Additionally, it provides information about resources, concessions, mining areas, and territories. The information card of the mineral deposit is an essential element of the appraisal report because it assists the property valuer in determining the quality of the appraised mineral deposit, as well as its environment and competition (Jasiński, 2013). Part two of the Documentation (descriptive) includes the geographic characteristics of the mineral deposit's location, the state of development of the mineral deposit, and its surroundings. This section also describes the geological conditions of the mineral deposit's occurrence, its detailed structure, and the classification and accounting of its resources. Part three of the Documentation (graphic) consists of drawings of borehole profiles, geological profiles of reconnaissance workings, and selected mining workings in the case of active mining plants. It also includes a series of cartographic studies, including (Regulation, 2015):

- location map of the mineral deposit plotted on a topographic map,
- situational-elevation map,
- situational-bathymetric map (test plan) for marine areas of the Republic of Poland,
- geo-environmental map of the area of occurrence of the mineral deposit showing environmental components under protection,
- maps illustrating the structure of the mineral deposit, necessary for characterizing its form, arrangement, construction, and mineral quality,
- calculation maps of mineral deposit resources, geological and hydrogeological maps and sections, geological-engineering, geothermal, and gas-bearing capacity maps.

The last fourth part of the geological documentation of the mineral deposit consists of tables containing the results of studies on the type and quality of the mineral, calculations of mineral resources in various parts of the deposit or calculation blocks, a summary of mineral deposit resources, and a summary of rectangular plane coordinates in the national spatial reference system (including points defining the boundaries of the documented deposit and drilled boreholes).

Another obligatory source of data on the quality of the mineral deposit is the deposit development plan. This is a document prepared by an investor applying for a concession to extract minerals from a deposit based on geological documentation, taking into account technical and economic conditions. The development plan specifies intentions for the rational management of the deposit and its exploitation, ensuring minimal negative impact on the environment. It is drafted in descriptive form, outlining the optimal approach for resource utilization from the deposit. This optimization must consider the geological conditions of the deposit, as well as the technical and economic feasibility of extracting the minerals. Importantly, the project must also include environmental protection measures and methods to safeguard the remaining resources within the deposit. The content requirements of the project are regulated by law. Depending on the level of detail and accuracy of the assessments, the project corresponds to pre-feasibility or feasibility studies. The conditions specified in the project allow for the identification of industrial mineral resources within the deposit — parts of the balance resources that can be economically mined and optimized from a technical and economic standpoint while meeting environmental protection requirements.

The concession for mining minerals from the deposit is an administrative decision issued by the licensing authority, specifying the type and method of mineral extraction, the mining area, the start and duration of the concession, and necessary measures for rational deposit management (Act, 2023a). Three conditions must be met simultaneously to obtain this concession: the area of the documented non-state-owned deposit must not exceed 2 hectares, mineral extraction from the deposit in a calendar year must not exceed 20,000 $m^3$, and the mining operation must be conducted using open-pit methods without explosives. The concession also defines the mining area and terrain. The mining area is the space within which the mining entrepreneur is authorized to extract minerals and carry out necessary mining operations for the concession. The mining terrain is the area affected by the anticipated harmful impacts of the mining operations of a mining plant, such as dust and noise in the case of aggregate extraction and paraseismic vibrations when explosives are used (Wiland, 2015). The concession for mineral extraction is granted for a specified period, not shorter than 3 years and not longer than 50 years (Act, 2023a). This document is mandatory when preparing a mineral deposit appraisal report, as without the possibility of extracting the mineral deposit, the land property containing it becomes a property without special purpose.

Operational records of mineral deposit resources are another obligatory source of information, containing the justification for changes in the mineral deposit resources during exploitation and the classification of resources and losses. They include summaries of balance, non-balance, industrial, and non-industrial resources, and the exploitable resources for deposits of therapeutic waters, thermal waters, and brines (Regulation, 2015). Based on this data, an annual balance of mineral deposit resources is prepared in descriptive, graphic, and tabular forms.

Another document is the mining plant operation plan based on the conditions specified in concession decisions and mineral deposit development projects (Act, 2023a). The data that a property valuer can use includes the method of deposit management in space, principles of resource classification for losses, projected exploitation and non-exploitation losses, and for a mining plant extracting minerals through boreholes — therapeutic waters, including exploitable resources and projected losses (Act, 2023a; Regulation, 2015). Other geological studies owned by the State Treasury can also be used in the valuation process. Access to this information is paid. A prospective mining entrepreneur acquires this information to obtain a concession decision for mineral extraction.

The location of the land property and the accessibility to the mineral deposit are determined by source materials from Group 4. This group includes two materials that also appeared in Group 3 (geological documentation of the mineral deposit and the mineral deposit development project). These sources are used to describe the deposit's accessibility. It is important to remember that the property valuer must also determine the infrastructural conditions related to the valued land property and future possibilities for exploiting the mineral deposit. In particular, they must describe the accessibility to transport routes and restrictions on exporting finished products, the property's accessibility for machinery and equipment necessary for exploiting the deposit, and the accessibility to technical infrastructure required for industrial production. The valuer can obtain this information from the cadastral map, which is the basic, large-scale cartographic work used for economic purposes in Poland. The primary source of information about the location of any property is the site inspection (also known as a property survey). The property survey allows for a detailed acquaintance with the technical and functional condition of the property (Regulation, 2023). The information collected during the survey will also serve to analyze the real estate market in the selected segment properly. When describing the location, one can also utilize information from topographic maps and other cartographic works from the National Geodetic and Cartographic Resource. Property valuers can also use spatial data from open resources available through geoportals. In Poland, several such map geoportals operate successfully (Bieda et al., 2023).

Another group of source materials is those that define environmental conditions and land development (Group 5). The environmental conditions for utilizing the mineral deposit and the restrictions on its use are determined by the environmental impact assessment decision. This is a mandatory administrative decision issued for projects that may always or potentially significantly impact the environment (Regulation, 2023b). Obtaining this decision is a prerequisite for obtaining a concession for mineral extraction from the deposit. This decision specifies the type and location of the project and the conditions for using the environment during the implementation and exploitation phases, with particular emphasis on the need to protect natural values, natural resources, and historical monuments and to limit nuisances in neighboring areas. The decision also includes information on environmental protection requirements, public participation in environmental protection, and environmental impact assessments. An important element of the decision is demonstrating methods and techniques to prevent environmental degradation or eliminate the consequences of industrial accidents (Act, 2024).

Data concerning land development, i.e., determining the so-called planning purpose of the valued property, can be obtained by the property valuer based on planning documents carried out at the municipal level. In the current legal framework, these include the local spatial development plan and the study of conditions and directions of the spatial development of the municipality (which will be replaced by the general municipality plan starting January 1, 2026). As of the 2024 legal framework, the local spatial development plan is the primary document required when applying for a concession for mineral extraction from the deposit. The concession authority may refuse to issue the concession if such extraction would prevent the use of the property in accordance with its designated purpose specified in the local plan. This plan is an act of local law that details the conditions for building and land use, as well as how the property owner can effectively and potentially use the land in accordance with legal regulations. For a property with a mineral deposit, the plan should indicate that the property is designated for deposit development, i.e., its extraction. The concession will not be issued if the local plan does not include a provision for the possibility of using the land for mining activities. As noted by Szamałek (2019), when the plan permits mining activities, i.e., the deposit can be extracted, its presence within the property positively impacts its value. In the absence of a local plan, a concession can be obtained based on the study of conditions and directions of spatial development of the municipality (Wiland, 2015).

Group 6 (the last group) is a collection of studies derived from the adopted valuation approach. As detailed in the chapter "*Identification of valuation methods for land properties with mineral deposits in Poland*," the comparative, income, and cost approaches can be used in valuing properties with mineral deposits. In each of these approaches, the property valuer uses various sources that must or should be considered in the valuation process. Using the comparative approach, a property valuer must have transaction prices of similar properties that have been traded on the market. Therefore, obtaining transaction prices of land properties that include a mineral deposit is necessary. The most reliable information about these prices comes from notarial deeds of property sales, which are the most credible material. If the valuer cannot access notarial deeds, they can use the real estate price register. This register is maintained by county governors. It is created based on information contained in notarial deeds. Information from the real estate price register is made available via web services and internet portals or in the form of paper extracts. The register contains designations of the notarial deed, the type of transaction and market,

information about the buyer and seller, the gross transaction price, and the VAT amount. In valuing land property with a mineral deposit, only those notarial deeds that include transaction prices of the property and the price of the deposit carry informational value. In the income approach, a property valuer must determine the amount of revenue and operating expenses. To do this, they can use various studies provided by the user or obtain them from the market. These documents include financial reports, accounting documents, market information on mineral sales prices, extraction costs obtained from the user, business plans, and data from the Central Statistical Office regarding average market prices. In the cost approach, a property valuer can consider data from notarial deeds with prices of agricultural and forest lands, as well as official statistical data. Information on the quality and quantity of the deposit can be obtained from the deposit development project and the cadastral records of the deposit's resources.

## Business Techniques in Prioritizing Source Materials

The prioritization of source materials will be conducted using a combination of two business techniques: the MoSCoW method and the Action Priority Matrix.

MoSCoW is a prioritization technique used in business analysis for enterprises and institutions (Kravchenko, Bogdanova & Shevgunov, 2022; Kravchenko and Bruskin, 2017), as well as in the development of various types of software, including games (Kostev, 2023; Lobo et al., 2023; Zhang, 2023; Azevedo et al., 2022; Mohan et al., 2022; Ahmad et al., 2022; Freese and Lukosch, 2021; Jahan et al., 2019; Popli, Chauhan & Sharma, 2014) and management systems (Abedian, Bitaraf & Askari, 2018; Beltman et al., 2016).

However, it is increasingly being applied to other tasks, such as creating guidelines for clinical trial teams (Murray et al., 2024), designing digital interventions to improve eating habits (Livingstone et al., 2024), identifying key needs for data transmission security from unmanned aerial vehicles (Gunawan et al., 2023), determining factors influencing the adoption of Construction 4.0 in transportation (Bou Hatoum, Nassereddine & Dadi, 2023), utilizing digital twins in production systems (Popescu et al., 2022), developing performance indicators for airline catering organizations (Rajaratnam and Sunmola, 2021), prioritizing occupational safety and health measures (Kharzi, Chaib and Akni, 2020), and creating frameworks for senior-friendly technologies (Spiru et al., 2019). In real estate valuation research, MoSCoW has been used to gather information on individual preferences in the real estate market (Chmielewska, 2023). Additionally, it was employed to outline the requirements for an automated property valuation system (Wiersma, Nguyen & Geenen, 2017).

The MoSCoW method involves assigning one of four categories to each action or functionality: "Must have", "Should have", "Could have" and "Won't have" (Kuhn, 2009). For the purpose of the analysis, standard categories of the MoSCoW method were assigned to source materials used in the process of valuing land properties with mineral deposits. The definitions of each category (both standard and modified for the study) are presented in Table 2, where the standard definitions are cited from Brennan (2009).

*Table 2. MoSCoW Analysis Categories. Source: own study.*

| Category | Standard definition | Definition for the purpose of the study |
|---|---|---|
| Mo – MUST | Describes a requirement that must be satisfied in the final solution for the solution to be considered a success. | Materials that must be considered in the process of valuation of land property with a mineral deposit. |
| S – SHOULD | Represents a high-priority item that should be included in the solution if it is possible. This is often a critical requirement but one which can be satisfied in other ways if strictly necessary. | Materials that should be considered in the process of valuation of land property with a mineral deposit, if possible. The information contained therein is crucial to conducting a valuation, but it can be obtained from other studies. |
| Co – COULD | Describes a requirement which is considered desirable but not necessary. This will be included if time and resources permit. | Materials that can be considered in the valuation process<br>land property with a mineral deposit if circumstances allow. |
| W – WON'T | Represents a requirement that stakeholders have agreed will not be implemented in a given release but may be considered for the future. | Materials whose quality does not allow their use in the process of valuation of land property with a mineral deposit. |

The second method that will be used for classifying the importance of source materials is the Action Priority Matrix (APM). This method is used to prioritize planned actions and has been widely applied in scientific literature across various fields, such as: Implementation of data-driven and machine-learning-based predictive maintenance (Nethamba & Grobbelaar, 2023; Nethamba & Grobbelaar, 2022), Creation of the Smart Governance Framework for Improving Bio-Business Licensing Services (Maulana et al., 2023), Identification of possible stakeholders of a seafood company influenced by SARS-CoV-2 hazards (Wiśniewska & Grybek, 2023), Implementation of various ICT solutions (Galaburda, Kuzminska & Halaburda, 2023; Sabani, Thai & Hossain, 2023; Blasi et al., 2018), Guidelines for humanization in healthcare (Álvarez-Díaz et al., 2022; Wilson et al., 2018) and its

management (Kaemingk et al., 2022) and education (Hobson et al., 2021), Medical errors (Poder & Maltais, 2020), Greater sustainability in production (Trubetskaya, Scholten, & Corredig, 2022), Production risk (Shezi et al., 2022) and its improvement (Pariasa, Anam & Hardana, 2021; Wibawa et al., 2021; Abad-Morán et al., 2021; Cherkos et al., 2018), Service quality (Kowalik, 2018).

The APM is implemented through an impact-to-effort matrix (Helmke, 2022), which results from mapping planned actions based on the effort involved (here: difficulty in accessing evaluated data sources) and their impact on the quality and outcome of valuing real estate with a mineral deposit. This is in accordance with the scheme presented in Table 3.

*Table 3. Scheme of the impact-to-effort matrix. Source: own study.*

| Impact / Effort | Low effort | High effort |
|---|---|---|
| High impact | Materials that are easy to obtain and have a significant impact on the quality and outcome of valuing real estate with a mineral deposit. | Materials that are difficult to obtain and have a significant impact on the quality and outcome of valuing real estate with a mineral deposit. |
| Low impact | Materials that are easy to obtain and do not have a significant impact on the quality and outcome of valuing real estate with a mineral deposit. | Materials that are difficult to obtain and do not have a significant impact on the quality and outcome of valuing real estate with a mineral deposit. |

The classification of the importance of source materials was prepared based on the compilation of the two methods described above. Each data source was assigned to one of the MoSCoW categories (Must have = 3; Should have = 2; Could have = 1; Won't have = 0) and evaluated for the difficulty of access (High effort = 1; Medium effort = 2; Low effort = 3) and its impact on the quality of valuing real estate with a mineral deposit (High impact = 3; Medium impact = 2; Low impact = 1). Assignments were made by experts in property valuation, geology, environmental engineering, spatial planning, cadastre, and real estate management, as collectively authored in the article. Initially, each author worked independently in silence. Subsequently, proposed values were discussed and ultimately agreed upon. The source materials were assigned appropriate MoSCoW categories and impact and effort ratings. Subsequently, the assigned ratings were summed up. The resulting cumulative index was used to create a hierarchical list of data sources for valuing real estate with mineral deposits. To ensure the most credible and high-quality valuation results for the analyzed properties, the authors of the study propose starting with the acquisition of source materials that received the highest ratings. These are materials that require the least effort from the property valuer while contributing the most to the quality of the assessment.

## Results and Discussion

After analyzing the literature and numerous appraisal reports related to the valuation of real estate with mineral deposits, 38 source materials were identified whose recognition ensures the accuracy of the valuation process. These materials were aggregated into six thematic groups (Table 1). In turn, the classification of the importance of these materials (assigning them to specific MoSCoW categories and impact and effort ratings) is presented in Table 4.

*Table 4. Prioritization of source materials used in the process of valuing land properties with mineral deposits. Source: own study.*

| Title of Compilation | MoSCoW Category | Effort | Impact | Total | Ranking position |
|---|---|---|---|---|---|
| Act of June 9, 2011, Geological and Mining Law | 3 | 3 | 3 | 9 | 1 |
| Regulation of the Minister of the Environment of July 1, 2015, on geological documentation of mineral deposits, excluding hydrocarbon deposits | 3 | 3 | 3 | 9 | 1 |
| Act of August 21, 1997, on Real Estate Management | 3 | 3 | 3 | 9 | 1 |
| Regulation of the Minister of Development and Technology of September 5, 2023, on real estate valuation | 3 | 3 | 3 | 9 | 1 |
| Civil Code of April 23, 1964 | 3 | 3 | 3 | 9 | 1 |
| Property inspection | 3 | 3 | 3 | 9 | 1 |
| Planning documents at the municipal level | 3 | 3 | 3 | 9 | 1 |
| National Specialized Valuation Standard (KSWS): Valuation of land properties with mineral deposits included in real estate ownership | 2 | 3 | 3 | 8 | 2 |
| POLVAL Code. Polish Association for Mineral Deposit Valuation, Kraków | 2 | 3 | 3 | 8 | 2 |
| Interpretative Note: Application of the comparative approach in real estate valuation | 2 | 3 | 3 | 8 | 2 |
| Interpretative Note: Application of the income approach in real estate valuation | 2 | 3 | 3 | 8 | 2 |
| Land Register | 3 | 2 | 3 | 8 | 2 |
| Land and Mortgage Register | 3 | 2 | 3 | 8 | 2 |
| Basic map | 3 | 2 | 3 | 8 | 2 |

| Title of Compilation | MoSCoW Category | Effort | Impact | Total | Ranking position |
|---|---|---|---|---|---|
| Accounting documents regarding revenues and operating expenses | 3 | 2 | 3 | 8 | 2 |
| Market information on mineral sales prices and operating expenses | 3 | 3 | 2 | 8 | 2 |
| Extraction costs obtained from the user | 3 | 2 | 3 | 8 | 2 |
| Notarial deeds with prices of agricultural and forest land | 3 | 2 | 3 | 8 | 2 |
| Notarial deed of acquisition | 2 | 2 | 3 | 7 | 3 |
| Geological documentation of the mineral deposit | 3 | 1 | 3 | 7 | 3 |
| Deposit development plan | 3 | 1 | 3 | 7 | 3 |
| Register of mineral deposit resources | 3 | 1 | 3 | 7 | 3 |
| Concession for mineral extraction from the deposit | 3 | 1 | 3 | 7 | 3 |
| Spatial data from open geoportals | 2 | 3 | 2 | 7 | 3 |
| Environmental impact assessment decision | 3 | 2 | 2 | 7 | 3 |
| Notarial deeds with transaction prices of real estate and the price of the deposit | 3 | 1 | 3 | 7 | 3 |
| Financial statements | 2 | 2 | 3 | 7 | 3 |
| Topographic map | 2 | 3 | 1 | 6 | 4 |
| Planning documents at the regional level | 2 | 3 | 1 | 6 | 4 |
| Business plan | 2 | 2 | 2 | 6 | 4 |
| Other documents establishing legal status | 1 | 2 | 2 | 5 | 5 |
| Other geological studies | 2 | 1 | 2 | 5 | 5 |
| Mine operation plan | 2 | 1 | 2 | 5 | 5 |
| Other cartographic studies from the State Surveying and Mapping Resource | 2 | 2 | 1 | 5 | 5 |
| Data from the Central Statistical Office regarding average market prices | 1 | 3 | 1 | 5 | 5 |
| Data from the Central Statistical Office regarding average prices of agricultural and forest land | 1 | 3 | 1 | 5 | 5 |
| Real estate price register | 0 | 3 | 1 | 4 | 6 |
| Notarial deeds with transaction prices of real estate excluding the deposit price | 0 | 2 | 1 | 3 | 7 |

The first group consists of legal and methodological materials and valuation standards related to the adopted approach, subject, scope, and purpose of the valuation. These are mostly legal acts (laws and regulations) that are mandatory in Poland ( Must have = 3) and methodological materials used depending on the adopted valuation approach ( Should have = 2). Most of these materials are easily accessible and strongly influence the quality of the valuation. The second group comprises materials defining the legal status of the mineral deposit. Land registry and land register entries are categorized as Must have materials. Access to these is not unrestricted, but they significantly impact the quality of the valuation. Only if the appraiser does not have access to these, they may resort to a notarial deed of acquisition or other documents establishing legal status ( Could have = 1). All materials in the group defining the quality of the mineral deposit, its reserves, and exploitation possibilities are classified as mandatory ( Must have = 3). However, access to them is not unrestricted, and acquiring them requires considerable time and effort from the appraiser. Very important in the valuation process are all data determining the property's location. Research results have confirmed this. Visual inspection of the property is a key stage in every valuation; only proper recognition of property features ensures high-quality assessment. Therefore, property inspections or analysis of the cadastral map have been categorized as "Must have." In this area, the property valuer can also utilize other supporting studies, such as topographic maps or spatial geoportals in open access. Materials allowing determination of property designation are also crucial for making concession decisions. Therefore, planning documents implemented at the municipal level have been classified as "Must have," scoring 3 points. These materials are easy to find and have a very high impact on the quality of the valuation. Another important document is the decision on environmental conditions; however, its impact on the quality of the valuation of real estate with mineral deposits is indirect. The last group of materials consists of those resulting from the adopted valuation approach. As mentioned several times in the paper, comparative, income, and cost approaches can be used in the valuation of real estate with mineral deposits (according to Polish law). However, the classification of the importance of source materials shows that materials used in the comparative approach do not guarantee adequate valuation quality. In the comparative approach, the property valuer needs transaction prices of similar properties to the property being appraised. These data must be obtained from notarial deeds, and access to them is not open. Furthermore, to properly determine the component parts of the property, it is necessary to use notarial deeds that separately present the transaction price of the real estate and the price of the mineral deposit itself. Such data have been categorized as "Must have," 3 points. They have a very significant impact on the valuation outcome in the comparative approach. However, practice shows that there are no notarial deeds in the market that present transaction prices in the above manner. Notarial deeds with transaction prices of real estate without distinguishing the price of the deposit are encountered, but this data is useless and has been categorized as "Won't have," 0 points. In the public register, which is more accessible than notarial deeds, there are also no transaction prices broken down by property and deposit. Hence, their utility in valuation is at the "Won't have" level of 0 points. What about

the income and cost approach? Source materials used in these approaches have better prospects for valuation quality. All documents provided by the user that provide information on revenues and operating expenses (such as financial statements and accounting documents) or information on mining extraction costs must be utilized in the valuation process ( Must have = 3 points). Their availability is limited because access requires participation and consent from a third party (user, owner), but their impact on valuation quality is very significant. Additionally, in these approaches, the property valuer can use other publicly available sources such as market information on mineral sales prices, revenue, and operating expenses, data from the Central Statistical Office, or data from notarial deeds with prices of agricultural and forest lands.

Based on the partial results, a total assessment index was calculated (highest score = 9 points, lowest = 3 points). Seven source materials obtained the highest score and, therefore, ranked first in the hierarchy of sources. These include all legal acts, municipal planning documents, and property inspections. In second place, with a total score of eight, are methodological materials and valuation standards, land registry, land register, and cadastral map, as well as source materials used in the income and cost approaches. In third place, scoring seven points, are all materials allowing the determination of deposit quality, resources, and exploitation possibilities, as well as notarial deeds with transaction prices of real estate and the price of the deposit (essential data for the comparative approach). The last positions in the hierarchy of sources were occupied by the real estate price register and notarial deeds with transaction prices of real estate without the deposit price, scoring 4 and 3 points, respectively.

Based on the above prioritization, three classes of utility for source materials in real estate valuation with mineral deposits were developed, as presented in Figure 2. The materials assigned to these classes do not exhaust the list from Table 4. Property valuers starting the valuation process should first identify source materials from these three classes. Initially, they should gather materials assigned to Class A, followed by those in Classes B and C. Analyzing these materials will allow for a prompt decision on the valuation approach and a quantitative and qualitative assessment of the valued real estate with mineral deposits.

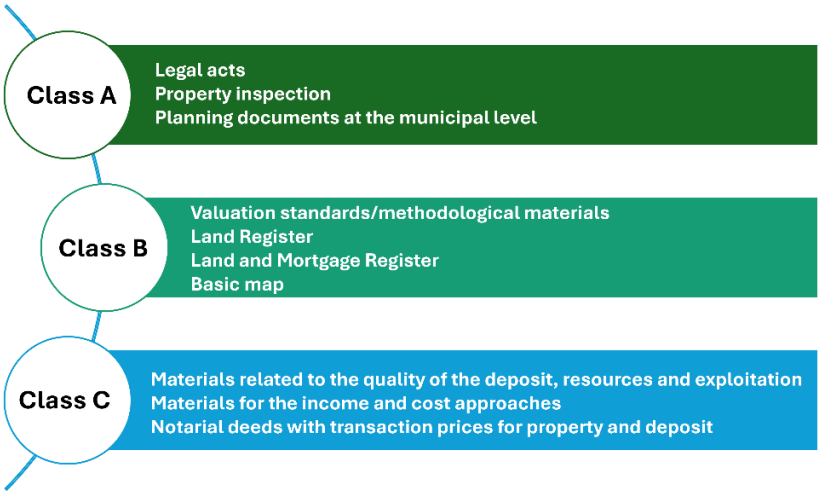


*Fig. 2. Utility classes for source materials for valuations of land properties with mineral deposits. Source: own study.*

## Conclusion

The conducted research has shed light on the challenges of valuing real estate with mineral deposits in Poland. Three valuation approaches can be applied: comparative, income-based, and cost-based. The choice of method rests with the property valuer and depends on the valuation purpose and the type of geological-mining asset, which determines the development status of the deposit and, thus, the property. Regardless of the approach taken, a valuer determining the value of a property must analyze various source materials, the quality of which affects the outcome of the appraisal. Based on the conducted research, the following conclusions can be drawn:

1. Property valuers need to utilize multiple source materials to determine the value of real estate, and access to these materials varies. The owners of these data are usually private individuals or institutions. Access to these materials is mostly fee-based and requires a significant time investment.
2. For real estate with mineral deposits, property valuers have access to nearly 40 source materials, including legal documents, documents defining the legal status of the mineral deposit, documents determining the quality of the deposit, its resources, and exploitation possibilities, documents defining the location and accessibility to the deposit, environmental conditions, land development, and materials related to the chosen valuation approach.

3. Currently available source materials essential for the comparative approach do not guarantee accurate valuation results for real estate with mineral deposits. In the comparative approach, the property valuer needs transaction prices of similar properties to the property being appraised. For properties with mineral deposits, separate prices for the property and the deposit are necessary, typically found in notarial deeds. Such detailed data are not available in property price registers, severely limiting the use of the comparative approach. Furthermore, such data cannot be obtained from the property price register. This fact significantly restricts the possibility of using the comparative approach.
4. Source materials currently available on the market, openly accessible or provided by the user/property owner, allow for a satisfactory valuation of real estate with mineral deposits using the income and cost approaches.
5. During the research, source materials that have the greatest impact on the valuation quality were identified. They were aggregated into three classes of usefulness for the valuation process, including Class A – legal acts, property inspection, planning documents at the municipal level; Class B – valuation standards/methodological materials, land registry, land and mortgage register, basic map; Class C – materials related to the quality of the deposit, resources and exploitation, materials for the income and cost approaches, notarial deeds with transaction prices for property and deposit.
6. The authors propose that property valuers initiate the valuation process by acquiring source materials assigned to classes A, B, and C. Analyzing these materials will enable a prompt decision on the choice of valuation approach and a quantitative and qualitative assessment of the analyzed land property with mineral deposits.

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