

Information regarding measures taken for implementation of sustainable development policy within the Mining Area

Policy and legal regulations

When specifying the Polish legislation with reference to meeting the sustainable development rule it should not be forgotten that the tradition of mining law in Poland has a history of several centuries, same as in case of mining itself on Polish land. At first the rules for mining of mineral resources were determined by unwritten common law, whose codification gradually started in the medieval period.

On this account the foundations (beginnings) of the future sustainable development rule can be found already in the post-war mining law (a decree dated 6 May 1953 – Mining Law; Journal of Laws dated 1978 No. 4, item 12, as amended). For example in Art. 4 of the decree that is not binding any longer we read that mining of mineral resources is performed in such a way as to provide: a reasonable management of the mineral resource deposit, appropriate utilization of this deposit's resources and limitation of possibilities to cause damage of and changes in the natural environment and historic assets. This was not the only legal act referring to management of mineral resources deposits, which introduced ecological regulations that were – for those times – progressive. As an example we may name, say, *the Act dated 26 October 1971 on protection of agricultural and forest lands* (Journal of Laws No. 27, item 249, as amended) as well as *the Act dated 31 January 1980 on protection and shaping of the environment* (Journal of Laws dated 1983 No. 3, item 6, as amended).

As a result of political transformations that took place in Poland after 1989, legal regulations were reformed and adapted to market economy. The Act dated 23 December 1988 on business activity (Journal of Laws No. 41, item 324) repealed the provisions on state monopoly on mining of mineral resources. New mining law was adopted in the form of the Act dated 4 February 1994 – Geological and Mining Law (Journal of Laws No. 27, item 96) that remains in force until present days after being amended several dozens times. This Act constitutes a kind of a “mining code” and forms a basis for issuing of over 30 secondary legislation acts that regulate a whole spectrum of detailed issues such as:

- occupational health and safety, management of operation and specialist fire protection in underground mining facilities (Regulation of the Minister of Economy dated 28 June 2002; Journal of Laws No. 139, item 1169, as amended),
- occupational health and safety, management of operation and specialist fire protection in strip mining facilities that extract basic mineral resources (Regulation of the Minister of Economy dated 17 June 2002; Journal of Laws No. 96, item 858, as amended),
- occupational health and safety, management of operation and specialist fire protection in mining facilities extracting mineral resources via boreholes (Regulation of the Minister of Economy dated 28 June 2002; Journal of Laws No. 109, item 961, as amended),

- occupational health and safety, management of operation and specialist fire protection in strip mining facilities that extract common mineral resources (Regulation of the Minister of Economy dated 28 June 2002; Journal of Laws No. 109, item 962, as amended),
- the register of mining areas (Regulation of the Minister of Environment dated 21 May 2005; Journal of Laws No. 135, item 1131),
- mine rescue services (Regulation of the Minister of Economy dated 12 June 2002; Journal of Laws No. 94, item 838, as amended),
- deposits of deep ground waters classified as brines, medicinal and thermal waters and deposits of other medicinal mineral resources, as well as classification of common mineral resources of specific deposits or geological units into basic mineral resources (Regulation of the Council of Ministers dated 14 February 2006; Journal of Laws No. 32, item 220, as amended),
- underground landfills (Regulation of the Minister of Environment dated 16 June 2005; Journal of Laws No. 110, item 935),
- criteria and procedures for allowing waste into underground dumps (Regulation of the Minister of Economy dated 22 August 2007; Journal of Laws No. 163, item 1156),
- types of waste that can be non-selectively stored in underground landfills (Regulation of the Minister of Economy dated 26 October 2007; Journal of Laws No. 209, item 1514),
- detailed requirements that should be met by projects for deposits development (Regulation of the Minister of Environment dated 27 June 2005; Journal of Laws No. 128, item 1075),
- covering specific underground works performed with the use of mining technique with the provisions of Geological and Mining Law (Regulation of the Council of Ministers dated 23 April 2002; Journal of Laws No. 62, item 561, as amended),
- operating plans for mining facilities (Regulation of the Minister of Interior and Administration dated 14 June 2002; Journal of Laws No. 94, item 840, as amended),
- natural hazards in mining facilities (Regulation of the Minister of Interior and Administration dated 30 April 2004; Journal of Laws No. 99, item 1003, as amended),
- storage and use of blasting materials and equipment in mining facilities (Regulation of the Minister of Economy, Labour and Social Policy and Administration dated 1 April 2003; Journal of Laws No. 72, item 655),
- detailed rules for creation and functioning of mining plant liquidation fund (Regulation of the Minister of Economy dated 24 June 2002; Journal of Laws No. 108, item 951),
- gathering and making available geological samples and records (Regulation of the Minister of Environment dated 19 December 2001; Journal of Laws No. 153, item 1780),
- method and scope of performing the duty by the contractor operating geological works to make available and to transfer information and samples to geological administration authorities (Regulation of the Minister of Environment dated 19 December 2001; Journal of Laws No. 153, item 1781),
- geological works projects (Regulation of the Minister of Environment dated 19 December 2001; Journal of Laws No. 153, item 1777),
- cut-off parameters criteria for mineral resources deposits (Regulation of the Minister of Environment dated 18 December 2001; Journal of Laws No. 153, item 1774, as amended),

- specific requirements that should be met by geological records of mineral resources deposits (Regulation of the Minister of Environment dated 6 July 2005; Journal of Laws No. 136, item 1151, as amended),
- specific requirements that should be met by hydro-geological and geological-engineering records (Regulation of the Minister of Environment dated 3 October 2005; Journal of Laws No. 201, item 1673),
- specification of cases, in which it is required to prepare other geological records (Regulation of the Minister of Environment dated 23 June 2005; Journal of Laws No. 116, item 983),
- specific requirements that should be met by register surveys of mineral resources deposits (Regulation of the Minister of Environment dated 20 June 2005; Journal of Laws No. 116, item 979),
- disposing of a right to geological information against remuneration and making available geological information used free of charge (Regulation of the Minister of Environment dated 19 June 2006; Journal of Laws No. 124, item 865),
- measurement and geological records (Regulation of the Minister of Economy dated 19 June 2002; Journal of Laws No. 92, item 819),
- qualifications required of managers and supervisors of mining facilities operation, mine surveyor and mine geologist and list of positions in mining plant operation that require specific qualifications (Regulation of the Minister of Economy dated 11 June 2002; Journal of Laws No. 84, item 755, as amended),
- qualifications required of managers and experts performing activities within the scope of mining rescue services (Regulation of the Minister of Economy dated 15 December 2005; Journal of Laws No. 261, item 2186, as amended),
- royalty rates (Regulation of the Council of Ministers dated 17 November 2008; Journal of Laws No. 215, item 1357),
- sample forms of information regarding royalty for extracted mineral resources (Regulation of the Minister of Environment dated 3 December 2001; Journal of Laws No. 153, item 1773),
- sample forms of information regarding tankless warehousing of substances and storage of waste (Regulation of the Minister of Environment dated 20 June 2005; Journal of Laws No. 116, item 980, as amended),

Apart from the indicated Act – Geological and Mining Law and regulations issued on its basis a large number of other legal acts exist that regulate directly or indirectly the detailed rules of environmental protection in relation with management of mineral resources. These include above all: Act dated 27 April 2001 – Environmental Protection Law (Journal of Laws of 2008 No. 25, item 150, as amended), Act dated 27 April 2001 regarding Waste (Journal of Laws of 2007 No. 39, item 251, as amended), Act dated 10 July 2008 on extraction waste (Journal of Laws No. 138, item 865), Act dated 18 July 2001 – Law on Use and Conservation of inland waters (Journal of Laws of 2005 No. 239, item 2019, as amended), Act dated 7 July 1994 – Construction Law (Journal of Laws of 2006 No. 156, item 1118, as amended), Act dated 27 March 2003 on area planning and development (Journal of Laws No. 80, item 717, as amended), Act dated 16 April 2004 on environmental protection (Journal of Laws No. 92, item 880, as amended), Act dated 3 October 2008 on access to environmental information and protection, participation of general public in environmental protection and environmental impact evaluations (Journal of Laws No. 199, item 1227, as amended), Act dated 3 February 1995 on protection of agricultural and forest land (Journal of Laws of 2004 No. 121, item 1266, as amended), Act dated 13 April 2007 on prevention of environmental loss and its remediation (Journal of Laws No. 75, item 493, as amended). The indicated regulations form

an extensive legal system referring to mining and geology. It is consistent with Community Law and thus mostly with the acts that recognize the sustainable development rule as one of their priorities, i.e.: Treaty Establishing the European Community and the Treaty on European Union (consolidated versions; EU Official Journal C 321 E dated 29.12.2006, page 1) and with the Constitution of the Republic of Poland dated 2 April 1997 (Journal of Laws No. 78, item 483, as amended).

The character of sustainable development rule in Community Law is very broad. This rule conditions the whole of economic and social development, which is clearly visible in art. 2 of the Treaty Establishing the European Community that recognized as one of its basic tasks the support in the entire European Union of sustainable and continuous development of economic activity as well as of high level of environmental protection and natural environment quality improvement. Likewise of art. 2 of the Treaty on European Union it is stated that Union sets as one of its major goals the support of economic and social development as well as high employment level and reaching a sustainable and continuous development.

A somewhat smaller scope that refers mainly to environmental protection is presented by the sustainable development rule in art. 5 of the Constitution of the Republic of Poland, which states what follows:

The Republic of Poland guards the independence and inviolability of its territory, provides freedom, human rights and citizens' safety, guards the national heritage and provides environmental protection being guided by the sustainable development rule. "On the other hand, it arises from art. 74 of the Constitution that Public authorities shall pursue policies ensuring the ecological security of current and future generations. Moreover, everyone has the right to obtain information regarding environmental conditions and protection. Public authorities must support the actions that citizens undertake in order to protect and improve the condition of the environment. Pursuant to the provisions of art. 86 of the Constitution – everyone shall care for the quality of the environment and shall be held responsible for causing its degradation.

The term of environmental protection was defined in the Environmental Protection Law Act. It stands for an act of undertaking or abandoning actions that allows to keep or restore environmental balance, and that consists in particular in: efficient shaping and management of environmental resources in accordance with the sustainable development rule, preventing pollution and restoring proper condition of environmental elements.

Art. 71 of the Environmental Protection Law Act has major significance for efficient management of mineral resources deposits. The mentioned article provides that rules of sustainable development and environmental protection are the basis for development and updating of the country area development concept, regional development strategy, regional area development plans, studies of district area development conditioning and directions and local area development plans. These documents identify the solutions required for prevention of pollutants generation, provision of protection against pollutants already being generated and restoration of proper environmental condition. The article also establishes performance conditions for undertakings that allow achieving optimal results within the scope of environmental protection.

Efficient management of environmental resources is provided in –pursuant to the provisions of art. 72 of the Environmental Protection Law Act – the phase of district area development conditioning and directions and in local area development plans, by e.g. establishing

programs for efficient use of the land surface, including areas where mineral resources deposits are exploited, as well as consideration of mineral resources areas and current and future exploitation requirements for these deposits.

The Environmental Protection Law Act emphasizes however that detailed rules for management of a mineral resource deposit and environmental protection in connection with the deposit's exploitation are determined by the provisions of the already mentioned Geological and Mining Law Act that constitutes the "mining code."

Considerable part of the activity regulated by the Act (searching for or recognition of mineral resources deposits, extraction of mineral resources from deposits, tankless storage of substances and storage of waste in rock mass including underground mining workings) is subject to getting a concession. It should be added by the way that granting a concession must be preceded by the investor getting decisions regarding environmental conditioning, based on *the Act on information about the environment and its protection, participation of public in environmental protection and evaluations of environmental impact*. In most of the mining enterprises (excluding e.g. extraction of common mineral resources on an area lesser than 2 ha and yield lesser than 20,000 sq. m annually, without the use of explosives and outside areas covered by environmental protection forms) evaluation of environmental impact is conducted within the proceedings regarding issuing decisions on environmental conditioning. It is worth adding that participation of general public in such proceedings is ensured.

Returning however to the specifications of the Geological and Mining Law Act, the participation of local governments in undertaking concession decisions should be considered as a symptom of the sustainable development rule. A proper commune head, mayor or town president give their opinion or agree with the concessionary authority on opinions regarding granting concession in terms of investment's compliance with the local area development plan.

It is also significant in terms of environmental protection that the Act provides for the possibility to establish securities of claims that may arise due to operation of activities under concession, if a particularly important social goal connected in particular with environmental protection weighs in favor of it. Such protection is obligatory in case of storage of waste in the rock body.

Another important instrument of environmental protection is the project for deposit development that should be attached to the application for concession and for extraction of mineral resources deposits. The project for deposit development specifies the intensions referring to protection of mineral resources deposits and exploitation technology providing limitation of its detrimental impact on the environment. The project must cover an optimal variant of the deposit's resources use including geological conditions for its occurrence, requirements in connection with environmental protection, public safety, safety of human life and health, technical abilities and economic conditions for extraction of the mineral resource. Development and extraction of the deposit should be designed in such a way as to enable the future development of the undeveloped deposit section and the development of mineral resources from adjacent deposits.

The concession decision itself specifies among others requirements regarding activity under concession, in particular in terms of public safety and environmental protection. Concessions for extraction of mineral resources from deposits determine also the boundaries of the mining

area and terrain, and the mining area is the space within which the entrepreneur may operate his/her activity and the mining terrain is the range of the mining plant's predicted harmful impact. Moreover, such concessions specify the resources of the mineral resource deposit that can be extracted as well as their minimal use degree.

The concessionary authority refuses to grant a concession if the intended activity infringes the environmental protection requirements, including those connected with rational management of mineral resource deposits and with reference to the extraction of accompanying mineral resources, or render impossible the use of the property in accordance with their intended use. Refusal to grant a concession for operation consisting in storage of waste within rock body may also take place if there is a technically, environmentally or economically substantiated possibility to recycle or neutralize waste by means other than storage.

In terms of the sustainable development rule of extreme importance is the obligation to create a mining plant liquidation fund, which is imposed on the entrepreneur that was granted a concession for mineral resource extraction, tankless storage or storage of waste in the rock body. The amount of deductions for the fund is calculated by entrepreneur separately for each mining plant and constitutes an equivalent of the part of depreciation deductions from the mining plant's fixed assets determined in accordance with the income tax regulations. The entrepreneur gathers funds on a separate bank account by making payments during the period from the day the activity is started until the moment the liquidation of mining plant begins. The funds can be used exclusively to cover the cost of liquidating the mining plant or its marked part, also in case the entrepreneur goes bankrupt.

Another important legal instrument that puts the sustainable development rule into practice is the plan of mining plant operation that the entrepreneur must prepare before starting to operate his/her activity. The entrepreneur attaches to the plan any decisions regarding environmental use. Operation plan that is subject to approval by appropriate mining supervisory authority determines the detailed undertakings required for e.g. for ensuring safety, deposit management, environmental protection and damage prevention. Opinion on the operation plan must be expressed by proper local-government agency that refers to compliance of the entrepreneur's intentions with environmental impact among other things.

Occupational safety of mining plant workers is also an important aspect of the sustainable development rule. The Geological and Mining Law Act provides for a number of regulations that guarantee protection of workers, such as e.g. requirement to operate mining plant only under management and supervision of persons having proper qualifications, which is confirmed by proper mining supervisory authorities. On the other hand, secondary legislation determines positions in mining plant operations that can be occupied exclusively by persons of specific vocational qualifications and health conditions, which is also confirmed by proper mining supervisory authorities. Moreover, a vast number of obligations in terms of occupational health and safety is imposed on entrepreneur, e.g.: recognition of hazards connected with the operation of a mining plant, prevention and elimination of such hazards, evaluation and providing documentation of occupational risk present at a mining plant, employing properly organized operating personnel, training of employees in safe work procedures, operating properly organized mining-rescue services.

In contrast, among obligations referring to the protection of mineral resources deposits is the requirement for an entrepreneur to run records of deposit resources. This obligation consists in determination of changes in those resources. Entrepreneur must also keep measurement and

geological records including measurement, calculation and cartographic documents that present the mining and geological situation as well as surface situation within the boundaries of the mining terrain.

The obligation to pay royalties by the entrepreneur is also very important for putting the sustainable development rule into practice. In case of concession for extraction of mineral resources from deposits, the royalty is a product of the fee rate for a given mineral resource type and the quantity of extracted mineral resource. In case of concessions for other types of mining activity, the royalty is a product of the fee rate and the number of square kilometres of terrain, on which the activity is operated. If a mineral resource is extracted without the required concession or with gross infringement of extraction conditions, the proper authorities settle an increased fee. It is very important for the sustainable development rule that 60% of the fees constitute the income of the commune within whose area the activity is operated and 40% of the fees constitute the income of the National Environmental Protection and Water Fund. It is worth adding that in accordance with the Environmental Protection Law Act, the moneys of the National Environmental Protection and Water Fund are allotted for performance of tasks that serve environmental protection and water management, which result from the sustainable development rule.

The entrepreneur is responsible for damage caused by the mining plant operation. In case of the lack of entrepreneur or successor to his/her rights, the claims for reparation of damage caused by the plant operation are vested against the National Treasury represented by a competent mining supervisory authority.

The Geological and Mining Law Act regulates also entrepreneur's obligations connected with the last stage of mining activity – liquidation of a mining plant. The entrepreneur must secure or liquidate mining workings and mining plant structures and equipment; secure the unexploited part of mineral resource deposit; secure adjacent mineral resources deposits; take measures required for protection of adjacent facilities' workings; take measures required for environmental protection, land remediation and development of areas of previous mining activity. Mining plant liquidation is conducted based on the operating plan of the liquidated mining plant that is approved by a mining supervisory authority. It should be mentioned that after submission by the entrepreneur of the final decision of the proper mining supervisory authority that approves the operating plan of the liquidated mining plant, bank starts making payments from the mentioned mining plant liquidation fund. Entrepreneur may use the fund moneys exclusively to cover the cost of mining plant liquidation. When the mining plant liquidation is completed the mining supervisory authority gives consent to liquidate the fund after asking the opinion of a competent commune head or city mayor.

Regulations of the Geological and Mining Law Act provide for some exceptions in case of smallest entrepreneurs. For example, in case of searching, identification and extraction of common mineral resources (e.g. sand, gravel) on an area not exceeding 2 ha, if annual extraction of mineral resource is lesser than 20,000 cubic meters and activity is operated without the use of explosives, investor must only get a concession from the starost, without the requirement to prepare a deposit development plan and a mining plant operating plan.

During operation of mining activity and liquidation of a mining plant, mining supervisory authorities conduct inspections regarding rational management of deposit and protection of respective environmental elements. When supervising and controlling the mineral resources

deposits' management during their exploitation the mining supervisory authorities enforce the following:

- identification of the deposit and conditions of its occurrence made in advance, which includes hydro-geological, geological and engineering conditions, natural hazards, as well as their proper documentation,
- adjusting the scope of exploitation predicted in deposit development projects to mining and geological conditions, and rules of rational deposit management,
- compliance of exploitation intentions included in the operating plans submitted for approval with conditions specified in concession decisions and projects for deposit development,
- compliance of the deposit's resources use with the approved operating plans,
- correctness of keeping deposits' resources records, including in particular proper documentation of losses and justification for resources reclassification,
- formal settlement of resources and protection of unused deposits parts in liquidated mining plants.

Among the tasks of mining supervisory authorities are also supervision and inspection of mining plants in terms of occupational health and safety and fire safety. One of the aims of the actions performed in that respect is limitation and consequently elimination of technical hazards connected with operation of machines and equipment by employees at the workplace. In accordance with legal regulations included in article 111 of the Geological and Mining Law Act this goal is accomplished with reference to products meeting the requirements of compliance evaluation specified in the regulations that implement EC directives (so-called harmonized regulations) as well as with reference to products approved for use in mining plants by administrative decision of the State Mining Authority President (so-called area of unharmonised law). The President of the State Mining Authority issues a decision on approval of a given product for use in mining plants after determining that the product meets technical requirements, which is confirmed by tests results and assessment issued by authorized units based on the conducted tests. If during use it turns out that a product does not meet technical requirements influencing its safety level, the President of the State Mining Authority may cancel or modify approval of such a product for use in mining plants. These actions aim at guaranteeing high level of products safety in order to maximally limit the hazards that such products may pose to their users.

The second activity area of the President of the State Mining Authority as a market supervisory authority is carrying out tasks within the national system of products' control. There are two kinds of such tasks. First of all – checking whether products meet fundamental requirements. Secondly, conducting procedures regarding products that are marketed or put into use and that do not comply with fundamental requirements. Market supervision guarantees that products covered by EC harmonizing legislation that pose a threat to users' health and safety (if used in accordance with their purpose, in predictable conditions and properly installed and maintained) or do not comply with the appropriate requirements established in EC harmonizing legislation will be withdrawn from circulation or marketing them shall be prohibited or limited.

During inspections of mining plants the mining supervisory authorities check compliance of proceedings with procedures included in the document of safety and health protection of workers employed in a mining plant. This document is prepared for each mining plant by the entrepreneur, which allows for identification and updating of present hazards as well as for

undertaking prevention actions aiming at elimination or limitation of these hazards' occurrence.

Best practices in the mining industry

Supervision and inspections regarding environmental protection

Employees of the State Mining Authority conduct annually several dozens of inspections regarding deposit management and several dozens inspections connected with environmental protection issues in mining plants.

The State Mining Authority prepares each year a "Report regarding extraction of common mineral resources" that deals with completion of tasks resulting from conducted supervision over and control of operation of strip mining plants that extract common mineral resources. For example, in the last report of 2008 it was observed that the number of granted concessions and registered mining plants of that type increased (4921 plants as of 31 December 2008). Plants employing up to 5 people and extracting less than 35 thousand tones per annum are prevalent. Inspections conducted in those plants by mining supervisory authorities in 2008 (3824 inspections in 51% of supervised mining plants) showed that the most frequent irregularities are deficiencies in records referring to plant operation (required instructions, manuals, projects), non-observation of parameters for: slopes, edges, protection zones and safety zones and improper marking and protection of plant area.

Apart from mining activity regulated by the Geological and Mining Law Act a phenomenon of the so-called illegal exploitation. In 2008, 112 cases of illegal exploitation of mineral resources were recorded, whereas since 2005 a slight drop in registered cases regarding illegal exploitation is observed.

Environmentally-friendly investments

In order to minimize adverse transformations of respective environmental elements, based on art. 411 section 2 of the Environmental Protection Law Act, the President of the State Mining Authority gives opinions regarding applications of entrepreneurs for subsidizing environment-friendly mining tasks from the funds of the National Environmental Protection and Water Management Fund. Opinions regarding 7 such applications were given in 2008. For example the Kompania Węglowa S.A., "Ziemowit" Hard Coal Mine Division applied for subsidizing of construction of a transfer system for mine water purified of radium, from the level of 650 metres on the section from "Ziemowit" Hard Coal Mine to salt water pump station of "Piast" Hard Coal Mine – Ruch I. Spółka Restrukturyzacji Kopalń S.A. applied on the other hand for subsidizing of the project: "Limitation of negative environmental impact of CZOK Plant resulting from the change of the terrestrial water drainage system into an abyssal system in the "Saturn" Region". Application of the Katowicki Holding Węglowy S.A. regarded modernization of the water – sludge circulation system in the Mechanical Coal Processing Facility of the "Staszic" Hard Coal Mine.

Cooperation with local government bodies

Mining supervisory authorities co-operate with authorities of local government whereas the dominating form of this cooperation is activity of liaison teams and coordination commissions. The task of these committees is to form a basis for putting into practice the

conditions for sustainable development of mining communes, allow the entrepreneur to exercise his rights resulting from the concession to extract the mineral resource, aiming at minimization and timely remediation of damage caused by the operation of mining plants. An example may be the Liaison Team for coordination of activity within the influence area of impact of mines' exploitation on A-1 toll motorway, on the section from Świerklany interchange to the country border in Gorzyczki. In 2008 the subjects discussed during Teams' sessions regarded e.g. the planned scope of mining exploitation of mines and forecasts for this exploitation impact on aboveground structures; issues connected with non-continuous deformations, buildings that lean over for more than 15mm/m, surface fens and inundated areas as well as remediation of damage in structures, sewage system and traffic routes. Other subjects of works were also issues connected with mining exploitation in cities' safety pillars, recording of mining tremors, deformations on surface of the area within the safety pillars, e.g. for PKP route Trzebinia – Kraków, post-flotation water tank and for the area of village Luszowice. Other discussed issues were exploitation aims of the respective mines and connected forecast hazards for the surface of the area. In 2008, in all District Mining Offices, there were a total of 19 sessions of Liaison Teams and Coordinating Commissions.

Protection of structures

The essence of structures' protection mining and post-mining areas is proper prevention in terms of mining and construction. Mining exploitation is conducted in protected areas retaining specified discipline, based on long-term exploitation programs. Commission for Surface Protection at the President of the State Mining Authority expresses opinions Technical solutions planned by entrepreneurs.

In 2008 the Commission gave opinions on:

- “Program of protection of buildings in the Nowy Bytom district of Ruda Śląska and of main shafts and structures of the mining plant “Pokój” Hard Coal Mine in terms of mining exploitation in coalfields: 502wg, 502wd and 504 during the period 2008 – 2013”;
- “Mining exploitation and surface protection program of for the years 2009 – 2011 and up to 2014 of Kompania Węglowa S.A., “Bobrek – Centrum” Hard Coal Mine Division”.

In each of the examined cases the scope of undertakings planned by entrepreneurs were analyzed and evaluated, within the context of forecast mining exploitation impacts. A consequence of programs' performance is e.g. determination of nuisance connected with structures' use and even their temporary shutting off, which requires social approval. Social dialogue is essential and is realized by participation in Commission sessions of local self-governments and area users representatives and by functioning of Liaison Teams.

Area planning and development

Mining supervisory authorities agree each year on several hundreds of area development plans (there were 251 plan drafts agreed upon in 2008). During these procedures attention is given particularly to ensuring that proposed planning solutions allow the mining entrepreneur to exercises the rights under concession for extraction of mineral resource from the deposit and provide keeping conditions for health, human safety and property protection on areas covered by the impacts of mining exploitation. In 2008 the mining supervisory authorities agreed on 16 local area development plans for mining areas, considering the necessity to

integrate the actions of mining entrepreneurs with the interest of mining communes and local communities.

The mining supervisory authorities participate also in the development of studies regarding area development conditions and trends in communes that include mining areas within their preparation scope. In 2008 the mining supervisory authorities expressed their opinion in 253 such cases. By virtue of the Area Planning and Development Act the preparation of study is obligatory for area situated within the commune administrative limits and the study is not an act of local law. The study should include in particular hazards to people and property safety and occurrence of: natural geological hazard areas, documented mineral resource deposits, ground water resources and mining areas. They specify the following: areas exposed to hazard of flooding and sliding of rock masses, structures or areas for which a safety pillar is determined within the mineral resource deposit and areas requiring transformation, revitalization or remediation. Moreover, directors of the district mining offices and the State Mining Authority Director for Inspection of Powered Mechanical Equipment function as construction supervision authorities. Annually they issue several hundred of decisions regarding construction permit, several dozens of decisions regarding demolition permits for mining plant structures of and decisions regarding permit for use of mining plant structures. They also receive several hundreds of notifications regarding construction works.

Access to information

The President of the State Mining Authority gathers and archives measurement and geological records of liquidated mining plants in the Measurement and Geological Records Archive of the State Mining Authority. In this archive the measurement and geological records of liquidated mining plants are made available on conditions and by way specified in the Act regarding making available information on environment and environmental protection, participation of general public in environmental protection and evaluations of environmental impact. In 2008 measurement and geological records of as well as other documents of 34 mining plants (marked parts of liquidated plants) were accepted into the archive. As of the end of 2008 there were 14,234 items (that were document collections – map sets) registered in the documents base.

Written information regarding mining and geological conditions of building lots situated on post-mining areas was provided to town and commune offices and investors on an ongoing basis. 568 such sets of information were prepared in 2008. Appropriate division of national archives and appropriate town and commune offices were informed about taking over of measurement and geological records of a liquidated mining plant as well as of possibility to issue information based on such records.

Remediation and revitalization of post-mining areas

Operation of mining activity is connected with the necessity to occupy land and change the method of its development for the time the mineral resources are exploited. The amount of occupied area is closely connected with the exploitation method. The total area of land on which mining operation was ceased in 2008 and which required remediation amounted to 8,552.0 ha which is 22.4% of the total area used by the mining industry. The final result of remediation of land that was degraded by mining is completion of works on land of area amounting to 474.4 ha, which is 12.4% of the total area requiring remediation, on which operation of mining activity was ceased. Largest land areas were remediated within the brown

coal mining industry – 300.6 ha and rock resources mining industry – 78.8 ha. In 2008 the mining industry transferred a total of 635.6 ha of remediated land to other users for target development, out of which the most came from the brown coal mining industry – 483.4 ha.

A good example of completion of a complex post-mining area remediation program is the sulphur mining industry. Agricultural use was the predominant type of land use prior to start of sulphur deposits' exploitation. Sulphur deposits' exploitation was performed by strip mining ("Piaseczno" mine and later "Machów" mine) and caused a total devastation of soil in the area of strip mine workings, overlay dumping grounds and under ore processing structures and industrial infrastructure structures. To portray the scope of transformations: exploitation of "Piaseczno" Mine caused formation of a strip mine workings of about 160 ha of area and depth of up to 42 m as well as an overlay dumping ground of about 120 ha of area. Exploitation of sulphur deposit conducted by "Machów" Mine led to formation of a strip mine workings of about 560 ha of area and depth of up to 110 m. Restoring the original type of use on such considerable land areas was impossible, especially within the area of strip mine workings. Restoring use value to post-mining land required completion of particularly complex remediation programs and development of the land into land of forest-meadow-water character. As a result, the area originally used as agricultural area will be used after the completion of the remediation mostly as forest, water and recreation and meadow areas.

Revitalization of post-mining activity areas that are situated in urban development areas is an even more complex undertaking. Within this scope the following examples can be given:

- regeneration of post-industrial grounds of the liquidated "Gliwice" Hard Coal Mine conducted within the "Nowe Gliwice" project that assumed transformation of post-industrial grounds into enterprise zone including enterprise incubator, economic activity zone and regional education center that will incorporate a high school of enterprise and vocational school of arts.
- Development of the grounds of previous "Katowice-Kleofas" Mine (grounds of former "Gottwald" mine) in connection with performance of the project named "Silesia City Centre", as a result of which the post-mining area was developed with a shopping and entertainment centre, a housing estate and office and multifunctional buildings.

Protection of surface water from salinity

Other examples of undertakings aimed to reduce the negative impact of the mining industry on the natural environment, the completion of which allowed to significantly reduce this scale, are undertakings consisting in protection of surface water from salinity:

- "Olza" collector that forms the hydro-technical protection system for the Górna Odra river against saline water coming from the mines of the Rybnicki Coal District. This system was used in 2008 to drain 153.7 thousand tones of salt in beneficial periods of increased absorbing capacity of the Odra river;
- "Dębieńsko" Sp. z o.o. Mine Water Desalination Plant that desalinates the water coming from JSW S.A. "Budryk" Hard Coal Mine. In 2008 30.2 tones of salt load was managed, which stopped it from entering ground water. Desalination plant is situated outside the competence area of the mining supervisory authorities.
- Start of implementation of the concept of hydro-technical protection of the Vistula river for saline mine water of "Piast" Hard Coal Mine and "Ziemowit" Hard Coal Mine with the use of mine workings of Ruch II of "Piast" Hard Coal Mine as a

retention and dosing tank allowed to lower the load of chlorines and sulphates released to the environment by about 240 thousand tones when compared to 2007.

Utilization of former mine plants' structures

In the former Salt Mine "Wieliczka" a tourist route, a museum and a sanatorium were opened. Similarly, in the former Salt Mine "Bochnia" there is a sanatorium and a tourist route. Tourists can also visit the Monumental Mine – Museum in Tarnowskie Góry and soon a tourist route will also be available in the Monumental Mine of Ore Mining in Olkusz and in "Bolesław" S.A. Mining and Metallurgy Plant in Bukowno. In the former Experimental Hard Coal Mine "M-300" in Zabrze "Guido" Monumental Hard Coal Mine was created with a tourist route and in which it is possible to operate cultural activity. In the "Kłodawa" Salt Mine that is still working but is earmarked for liquidation a tourist route was opened. An Underground Oil and Fuels Storage Facility was created in the exploited chambers of the "Góra" Borehole Salt Mine. An Underground Natural Gas Storage Facility is being developed in the exploited "Wierzchowice" Natural Gas Mine. Within the area of "Katowice" Ruch "Gotwald" Hard Coal Mine an enormous shopping centre "Silesia City Centre" was established.

Safe liquidation of mining plants

Control of the natural hazards level (methane, crumpling and hydrogen sulphide hazards – in borehole mining of oil and natural gas) happens during and after liquidation of a mining plant. Scientific research is financed from the central budget, budgets of high schools and mining enterprises. This research is aimed at protection of surface in case of shallow exploitations (regeneration of mining areas).

In the period from 1990 to 2008 52 mining plants out of 101 underground mining plants were liquidated (restructured), including 31 out of 70 plants that extracted hard coal.

Safety conditions in liquidated mining plants in Poland

Natural hazards, in particular water, methane and fire hazards have fundamental influence on occupational health and safety and general safety in the process of mines' liquidation. Another significant hazards source is usage of physically worn out casing elements and of antiquated mining machines and equipment in the liquidated mines. During mines liquidation generically new hazards are formed that are caused by demolition of structures. In the period from 1990 to 2009 in the liquidated mines there occurred:

- 20 fatalities including 2 on surface,
 - 27 severe accidents including 5 on surface,
- and the following incidents:
- 10 fires,
 - 2 methane ignitions,
 - 2 other incidents, i.e. escape of backfilling material and backfill congestion during the liquidation of a shaft.

As the liquidation process continued, a change in the accidents' nature, causes and places of occurrence was visible. It was connected to a large degree with transfer of the liquidation works from underground mining workings to the surface. At the same time the nature of the performed works changed from typically mining and liquidation (liquidation of casing in

mechanized walls, liquidation of equipment for delivery of output and transport of materials, shaft equipment liquidation) to demolition and disassembly works on surface that required construction experience and knowledge from the contractors.

Another aspect was mining entrepreneurs employing service companies on surface that do not have equipment appropriate for such works as well as employing people that are young, inexperienced and lack specialist preparation.

Water management in connection with the liquidation of mining activity

In order to integrate the water drainage systems and seeking to complete the goals included in the correction of the Government Program “Hard Coal Mining Industry Reform in Poland in the years 1998 – 2002” the Management of the Spółka Restrukturyzacji Kopalń S.A. opened on 22 August 2000 the “Central Mines Drainage Plant”. The scope of plant’s activity is e.g. the protection of mines from the water hazard by performing underground works with the use of mining technique that are performed in order to construct or sustain the drainage system in former mining plants of hard coal mines. Among its tasks there are also management of mines’ property required for functioning of drainage, constant monitoring within the scope of changes in the level of rock mass hydration, hydraulic connections between mines of the Górnosląskie Coal Basin and environmental impact of the water drainage process. Pump stations of liquidated mines are connected to the Central Plant of Mines Dehydration (CZOK). When water hazard to adjacent mines are eliminated CZOK liquidates the pump stations and redundant infrastructure. It also undertakes initiatives aiming at increase in the sale of potable and industrial water and at use of heat from the pumped water. Creation of the Central Plant of Mines Dehydration that operated water drainage of the liquidated mines with the use of borehole pumps allowed reducing the cost of the process by about 20%.

Changes in the water conditions in the rock body and on the surface are of utmost importance among the processes connected with mines liquidation that can be initiated within the region of the liquidated mine. Liquidation of water drainage in an isolated mine causes restoring of the natural hydrodynamic conditions in the rock body. In special cases increase in the hydration of the area surface may occur. Stationary water drainage in liquidated hard coal mines is conducted in the following regions: Saturn, Siemianowice (Siemianowice System and Chorzów System), Jan Kanty, Pstrowski, Szombierki, Powstańców Śląskich – Bytom, Dębieńsko.

Protection of infrastructure outside of the mining plant area

Plant-owned flats were transformed into a separate dwelling apartments ownership and on the basis of mine-owned holiday centres companies operating recreation and tourist activity were created. Sport and recreation objects were made available to the general public by transferring these objects to field authorities (local self-governments). Hotels were transformed into Houses for the Elderly or other objects of social use.

Examples of using the mining plant liquidation fund

Within the area of the local District Mining Authority in Rybnik, in the operating “Rydułtowy – Anna” Hard Coal Mine the following shafts were liquidated in 2006: “Głowacki” and “Kościuszko”. The liquidation costs were covered from the mining plant liquidation fund.

Within the area of local competence of the District Mining Authority in Katowice in the operating:

- “Staszic” Hard Coal Mine, Shaft III – 100% of the liquidation costs covered from the mining plant liquidation funds of KHW S.A.,
- “Murecki” Hard Coal Mine, “Stanisław” Shaft – 70% of the liquidation costs covered from the mining plant liquidation funds of KHW S.A., 30% covered from own moneys.

Costs of shafts’ liquidation in “Katowice – Kleofas” Hard Coal Mine were covered from a budget subsidy.

Within the area of the local District Mining Authority in Gliwice, in the operating “Pokój” Hard Coal Mine the following shafts were liquidated: “Anna”, “Maria” and “Klara”. In case of KGHM Polska Miedź S.A., “Polkowice-Sieroszowice” Mining Plant Division, the liquidation of P-III and P-IV shafts was covered from the mining plant liquidation fund of KGHM Polska Miedź S.A. Liquidation of shafts was included in the operating plan for the years 2003 – 2006. The born liquidation costs were covered from own moneys.

Preparation for catastrophes and hazardous incidents

A mining rescue plan is prepared for each mining plant. Such plan specifies the methods of rescue operation performance in case people safety or mining plant operation are endangered by: fire, crimp, explosion of gas or coal dust, breakout of gases and rocks, caving of mining workings, inrush of water into mining workings, opening of isolated mining workings, penetration of idle mining workings, eruption of reservoir liquid, release of sulfane, rock slides in strip mining plants and energy-mechanical emergency. Mining rescue plan specifies a. o. organization of rescue and ambulance services within a mining plant, services obliged to cooperate with the mining plant rescue service with specification of the determined cooperation scope, ability for professional specialist rescue services of rescue units to constantly participate in the rescue operation, required rescue equipment with specification of the following: place of storage, means of transport and persons responsible for timely equipping the people with this equipment and for organizing medical help during the rescue operation. Mining rescue plans are approved by the mining plant operation director and are updated on an ongoing basis.

Safety of mining industry workers

In connection with the large number of natural deaths in hard coal mines, in some of them obligatory additional medical examination was introduced in order to detect cardiac and coronary disorders in workers of the age that is characterized with biggest hazard of developing such disorders (e.g. in “Bobrek Centrum” Hard Coal Mine in Bytom.)

In order to limit the number of eyes injuries in some hard coal mining plants an obligation to use personal eye protection during the period from driving down into the mine to the return to surface was introduced. One of the first mines to introduce this obligation was “Wujek” Hard Coal Mine in Katowice. Similar practices are employed in the Oil and Gas Searching and Exploitation Enterprise Petrobaltic S.A.

In 2003 29 hard coal mines introduced the obligation to use P-3 dust masks on the work stations in walls that were exposed to the highest degree. Aim of this action was to counteract the anthracosis more efficiently.

A central air conditioning system was introduced in “Budryk” Hard Coal Mine in Orontowice and in “Pniówek” Hard Coal Mine in Pawłowice in order to improve the conditions with connection to occurrence of high temperatures on workstations within the mine.

Introduction of a zone sprinkling system at harvester mining operations in “Budryk” Hard Coal Mine significantly reduced dusting and increased work safety and comfort. Additional sprinkling system is installed on roof bars of the mechanized casing and is activated by means of zoning – the harvest operator activates sprinkling when entering the zone and the second worker behind the harvester deactivates it. As measurements show, this solution decreased dusting by 10%.

Entrepreneurs (Kompania Węglowa S.A., Katowicki Holding Węglowy S.A., Jastrzębska Spółka Węglowa S.A., Południowy Koncern Węglowy S.A. and independent hard coal mining plants) organize contests of occupational health and safety knowledge year by year. Due to attractive prizes these contests draw major attention from workers and supervisors. The main aim of the organizers is to increase the occupational health and safety knowledge of workers and supervisors, which significantly influences the safety conditions.

In 2005 in “Szczygłowice” Hard Coal Mine in Knurów a program of registration of employees’ exposure to factors harmful to health in working environment was introduced. This program is a useful working tool of the employer and the occupational health and safety service that fully evidences the occupational health and safety conditions, allows to fully record the work progress and exposure of a given employee to factors harmful to health in working environment. The program is also used when preparing and implementing preventive actions.

A method of mine water purification was introduced in “Piaś” and “Ziemowit” mining plants that drained the most of radium bearing water. This method was devised in the Central Mining Institute in Katowice and consists in use of sorbing agents containing mostly barium chloride. RA 1 sorbing agent works by adsorption of radium compounds on the surface of barium sulfide crystals. Its merit is non-toxicity and its flaw is small effectiveness and necessity to use large doses of sorbing agent. On the other hand RA2 sorbing agent dissolves in the water that undergoes purification and reacts with the sulfide and radium ions present in it.

Occupational health and safety management systems based on the requirements of Polish Standards of series PN-N-18000 were introduced mainly in underground mining plants since 2002, during the period of several years. Requirements of these standards are compliant with the requirements of ILO-OSH 2001 guidance for occupational health and safety management systems of the International Labour Organization. The above system helps to start voluntary undertakings for improvement of regulations’ and standards’ observance aiming at providing continuous improvement of occupational health and safety actions. In 2008, within the evaluation of introduced system the necessity was pointed out to introduce corrective actions as far as creating conditions aiming at gradual improvement of safety culture level was concerned. Surveys regarding safety culture level of mining teams were conducted in a dozen

of hard coal mines within the improvement of the occupational health and safety management system. Surveys conducted with cooperation of scientific and research background was based on the concept that safety culture in enterprise is a collection of individual and group values, positions, competence and behaviour patterns. Results were presented during the Polish Mining Convention in 2007.

Entrepreneurs (Kompania Węglowa S.A., Katowicki Holding Węglowy S.A., Jastrzębska Spółka Węglowa S.A., Południowy Koncern Węglowy S.A. and independent hard coal mining plants) implemented standardized programs of initial occupational health and safety trainings that considered occupational risk assessment on workstations and introduced periods of professional adaptation for the newly employed workers that last from three to six months inclusive of the initial training period.

Activity in the EU forum

A Regular Extraction Industry Workgroup works within the Occupational Health and Safety Commission of the European Union Advisory Committee. A representative of the State Mining Authority participates in its work. One of current tasks of group members is a. o to prepare a “Code of good practices for performance of blasting works.”