

Mining Cadastre System a Necessity for Permits Management in Albania

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Abstract: Albanian territories contain different types of mineral resources of different qualities. Shortly after the establishment of the democratic system, the country began to grant the first permits for mineral exploration and exploitation. During the last 20 years, it is reported that in Albania the mining activity lies mainly in the north, in the chrome exploitation, but also in the southern part where limestone, bitumen etc., are exploited. These mineral resources have begun to be the focus of numerous investors along the last decade, with the result of more and more investors working in Albania. In order to make use of these resources there was the need of a new law and procedure. In 2010, the Ministry of Economy, Trade and Energy, adopt a new law on the mining sector. This law consisted of a new way of giving and administrating the mining permits from the companies, but it included for the first time the mining cadastre term as well. Based on the above mentioned and on the existing information of the mining permits in Albania, the article at hand will present the licenses managing process and the creation of the mining cadastre system through the use of GIS.

Keywords: Mining Cadastre, Exploitation and Exploration Permits, GIS, Albania.

1. Introduction

1.1. Albanian Mining Law Approach

In the early '90s, Albania began a long process of transition from dictatorship to democratic state operating systems. As a result many of the assets which earlier were called state property began to be given to private entities for investment and use. In this group of objects from the year 1995 began the concession of the mines used during the communist period. These mines, were divided into galleries, or divided by a certain areas, but never were gave as an entire mine.

In the early 2000s, Albania became the subject of investment for many foreign investors, who saw that the Albania's mining stocks were qualitative and fruitful. During the decades that follow, the exploration and exploitation licenses succumbed to the majority, by following a simple procedure which consisted in the application of the subject near the ministry and the approval of the latter without any control. Only in the year 2010, the central authorities, began to see that permitting procedures during the last two decades were create endless problems in relation to areas where different entities use. Consequently were created innumerable overlap and conflicts between new and old investors. To solve this problem, in July of 2010 the Ministry of Economy, Trade and Energy applied the new mining law, which was subsequent law since 1993 and its decisions.

Law no. 10304 dated 15/07/2010, will represent the new legal act of exploitation of mineral resources in the country. Among the ones who brought this law was granting permission specification as a whole and not through the horizons, as well as the implementation of the Mining Cadastre concept.

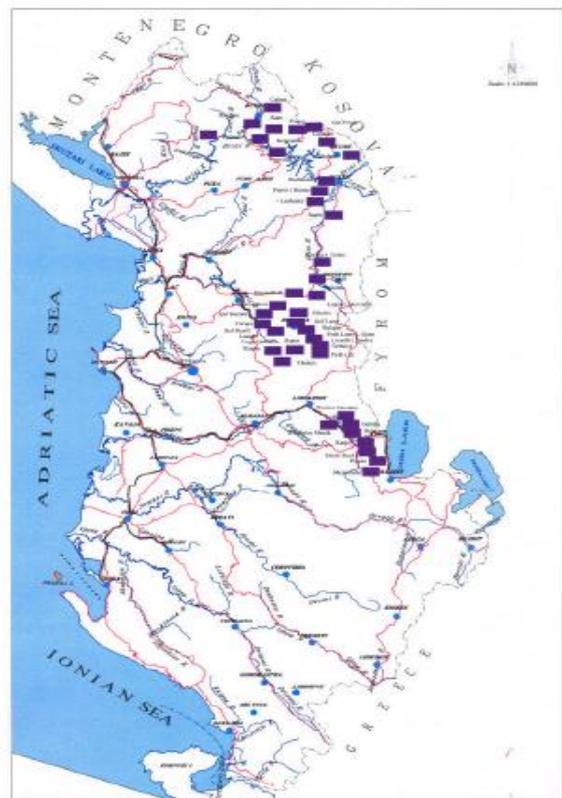


Figure 1: Chromium Ore Deposits in Albania (National Agency of Natural Resources, www.akbn.gov.al)

1.2. Mining Cadastre

The mining cadastre represents the gathering of the information for the management of mining permits, fees and payments, investments, obligations, etc. creating in this way a single database for all mining infrastructure. Mining cadastres are progressing rapidly in the recent years through the use of GIS, enabling a much better management of the

given permits as well as of the rights and obligations of the companies that have obtained them.

Governments normally grant mineral exploration and mining rights in particular areas by means of concessions, leases, licenses, and agreements. Efficient and effective granting procedures tend to be based on the following principles:

- A clear legal and regulatory framework
- Well-defined institutional responsibilities
- Transparent and non-discretionary procedures

In practical terms, the mining cadastre takes the following steps when administering

- Mineral titles;
- Formally captures applications for various types of mineral licenses (that is, prospecting, exploration, mine development);
- Registers changes and updates to mineral titles any time a title is granted or an owner changed;
- Checks license applications for possible overlaps with earlier claims or other impediments;
- Advises the granting authority on whether a license application is technically admissible or not;
- Ensures compliance with payment of fees and other requirements to keep a mining title valid;
- Advises the granting authority when mining titles should be canceled.

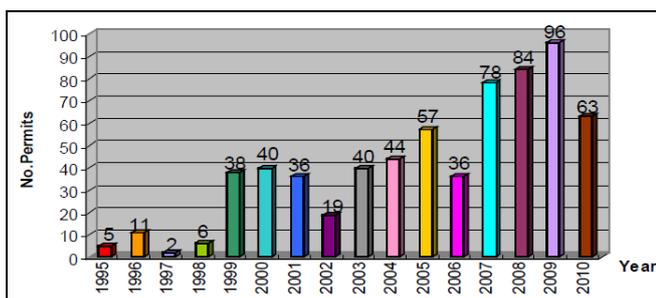


Figure 2: Mining permits distributed over years (National Agency of Natural Resources, www.akbn.gov.al)

1.3. GIS Usage

Geographic Information Systems are developed in an accelerate order during the last decade. This new kind of information management has occupied its part in the field of natural resources as well, and specifically in the management of natural resources and management of mining permits.

In this way now nowadays there are more than 50 countries who apply exploration and exploitation permits management through the use of GIS. The use of this technology, allows a maximum control of national resources, exploitation mode, the value of sales, etc.

Use of GIS in the field of mineral resources has been approached recently by the Albanian state that through this technology has begun construction of mining cadastre administered by the Ministry of Economy, Trade and Energy.

2. Materials and Methods

2.1 GIS Mining Cadastre Creation

The use of GIS in natural resources management brings in Albania a novelty to the latest technologies in this field. As a result the system established is focused on identifying real-time position and permits requirements exploration and exploitation permits requirements, general information about the companies that administrates these areas, the time of commencement and termination of the permit and their status, etc. This system is divided into four main areas, Renewable Energies, Hydrocarbon, Hydroenergy and Mining Activities.

2.1.1. Mining Cadastre Focus

Albanian territories contain different types of mineral resources of different qualities. As reported in Albania the mining activity lies mainly in the north, in the chrome exploitation, but also in the southern part where limestone, bitumen etc are exploited. Mining cadastre is focused on information storage companies that require or exploit natural resources through mining. Also to administrate permissions information data and information obtained from these subjects user. To this end was pointed out that the use of GIS will give better performance in this approach.



Figure 3: Natural Resource GIS based Application (National Agency of Natural Resources, www.akbn.gov.al)

2.1.2 GIS Developing

The GIS system is realized through the ArcGIS software of ESRI platform. The development of the program is realized through the establishment of a central database, through ArcGIS Server, and its published online for users. The information management is done through ArcGIS Desktop, at the National Agency of Natural Resources, Tirana.

The program development was made in accordance with the requirements of data mining cadastre, which were grouped into a single map and split as single Layers for each type. These layers contain a database structure which is divided into Object ID, Investor Name, Request Number, etc., and have possibilities for addition information for the future as well. All this information is represented in the coordinates system Gauss Kruger, Pulkovo 1942. (Figure 4)



Figure 4: Mining Cadastre Database and Map Preview (National Agency of Natural Resources, www.akbn.gov.al)

GIS Mining Cadastre is enabled through interactive exploration, what make possible selection of areas and at the same time view the data in the database. These graphical data are displayed on the screen and are able to printable for those interested.

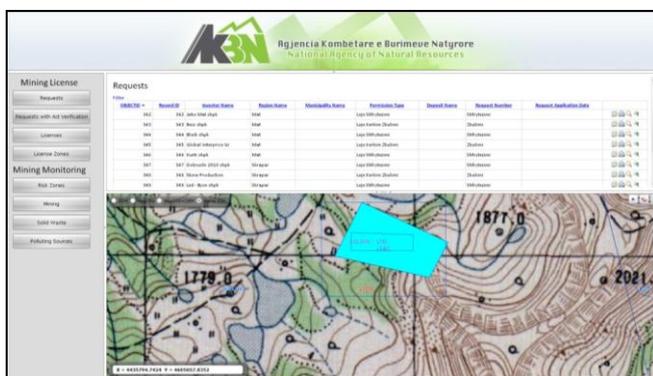


Figure 5: View of Permits Searching in the GIS Mining Cadastre (National Agency of Natural Resources, www.akbn.gov.al)

2.1.3. Optional Functions

The established system for the management of mining, will also offer in later versions other options. These options will be so interactive and will involve the implementation of some procedures in automated manner. Such as determining the areas of risk, acts printing of verification, definition of contaminated areas and closed mining areas.

Figure 6: Printing Form View at the GIS Mining Cadastre (National Agency of Natural Resources, www.akbn.gov.al)

2.2 Permits Management

2.2.1 Permits Application

Permits management process starts with the requirements of the concerned companies to obtain an exploration or an

exploitation permit in a given area. Application submitted to the National Licensing Centre, passed National Agency of Resource Management, which begin and examine the procedure.

The procedure consists of several stages of control, which includes the field verification of the required area, study conducted verification, documentation control and financial possibility, and one opposing this application by the appropriate specialists.

In the case that all the conditions are met for the approval of the permit confirmed then it will proceed with the publication of the permit and its deployment in mining cadastre system. In addition will be included and additional information that is necessary for the system.

2.2.2 Permits Administration

The usage of Mining Cadastre for managing licenses will lead to the solution of problems encountered so far with overlapping licenses. For this purpose, the group of all permits and data which will be provided continuously through the above procedure will bring relief to the situation. Likewise, this application will help and clarification of the current conflicts between subjects and also in clarifying the interested entities for areas where you can apply. Overlapping of permits is a problem which day after day is bringing conflicts but also financial damage for the state and mining entities.

Contours adjustment procedure by removing all overlaps, is a long process, but facilitated using GIS techniques and based on the new mining legislation of the country.

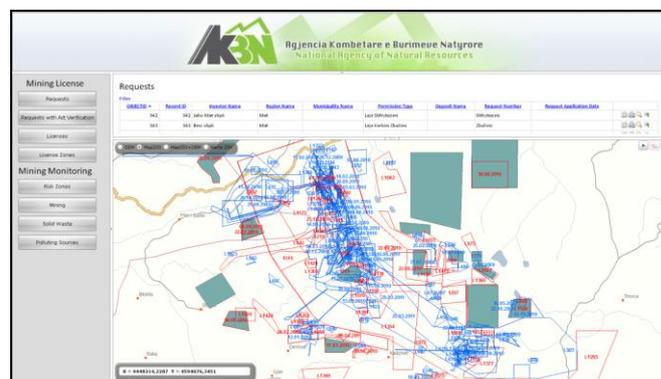


Figure 7: Permit Superposition in Albanian North Part. (Blue contour are Exploitation Permits and Red contour are Exploration Permits)

3. Results

3.1 GIS Mining Cadastre

Mining Cadastre realized through GIS, is an innovation for natural resource management in Albania. This application will improve the existing information situation and relationship of interested parties.

GIS program, is available on the web and free of charge. It is interactive for all interested parties. Information management is done centrally, using ArcGIS software and databases stored on the central server.

The data are administered by qualified personnel and the natural resource management application is supported by foreign technical support. The usage of GIS for management is the best solution in order to avoid overlapping problems and fix the boundaries between mining companies.

3.2 Permits Management

Established system for managing licenses was a necessary step for mining situation in Albania. This system is expected to solve the problems encountered so far and continual improvement of the situation.

The process of issuing permits more simplified through the use of GIS tools and data collection in a single database connected directly with the map and the contours of the permit.

4. Conclusion

In the early '90, Albania reports few mining entities, which over the past two decades have become thousands. For this purpose were requested improved legislation which was adopted by the European Union norms and was likened to new technology of GIS.

These steps undertaken by the Albanian government are expected to bring normalization to the exploitation of mineral resources and clarify the areas where can be invested by interested entities. Removing thereby overlapping permits and other issues related to them.

Mining Cadastre realized through GIS, is an innovation for natural resource management in Albania. This application will improve the existing information situation and relationship of interested parties investing in exploitation and exploration processes.

5. Future Scope

Since the beginning of the work for the Mining Cadastre, the permitting processes are significantly facilitated. The biggest problem remains the identification of permits granted under the old legislation and which result as overlapped.

This analysis is possible through GIS softwares using the data collected from the mining cadastre, but concern remains the fact of revocation of these licenses taking into account the investment that companies have made in the given permit areas.

Following the implementation of the mining cadastre another objective must be the preservation and maintenance of the information contained in it. Despite this should be considered the preservation of the data for companies that hold a mining

license in the field of exploitation or exploration.

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