

MINISTRY OF ECONOMY, TRADE AND ENERGY (METE)
REPUBLIC OF ALBANIA

**THE STUDY FOR THE MASTER PLAN
FOR PROMOTING THE MINING INDUSTRY
OF ALBANIA**

FINAL REPORT
Summary

November 2010

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to a request from the Government of the Republic of Albania, the Government of Japan decided to conduct “The study for the Master Plan for Promoting the Mining Industry in Albania” and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team, headed by Mr. Yoshiaki Shibata of Mitsubishi Materials Techno Corporation, consisting of experts from Mitsubishi Materials Techno Corporation and Kokusai Kogyo Co., Ltd., for six times between a period from May 2009 to November 2010.

The study team held discussion with the officials concerned of the Government of the Republic of Albania and conducted field study in Albania. Upon returning to Japan, the team conducted further studies and the final report was completed.

I hope that this report will contribute to the promotion of mining development of the Republic of Albania and also to the enhancement of friendly relationship between two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Albania for their close cooperation extended to the study.

Kyoko Kuwajima
Director General
Industrial Development Department
Japan International Cooperation Agency

November 2010

November 2010

Ms. Kyoko Kuwajima
Director General
Industrial Development Department
Japan International Cooperation Agency

Letter of Transmittal

Dear Sir,

We are pleased to submit herewith the final report of “The Study of the Master Plan for Promoting the Mining Industry of Albania”.

The targets for the mining sector of Albania are recovery and increase of productions by restructuring the mining sector and one of the important strategies launched by the Government of Albania is to implement reformation of the mining sectors. However, in addition to the currently facing problems of legislation, government policies and institutions, problems are also found in supporting structures, such as technical capability, manpower and improvement of infrastructure.

The main objective of the study, conducted during a period from May 2009 to November 2010, is to formulate the comprehensive master plan by clarifying a roadmap to realize sustainable development of mining industry under circumstances of economic transition to privatization and market-oriented economy. We hope that the master plan, together with the recently inaugurated new mining laws, will contribute greatly to sustainable development of mining sector of Albania.

We wish to take this opportunity to express sincere gratitude to the officials of your Agency, the Ministry of Industry, Trade and Economy, the Ministry of Foreign Affairs and Japanese Embassy in Rome and JICA Balkan Office for their kind support and advice. We, also, would like to show our appreciation to the officials of the Albanian government institutions, such as the Ministry of Economy, Trade and Energy, National Agency of Natural Resources, Albanian Geological Survey and the Ministry of Environment, Forests and Water Administration for their kind cooperation and assistance throughout the study in Albania.

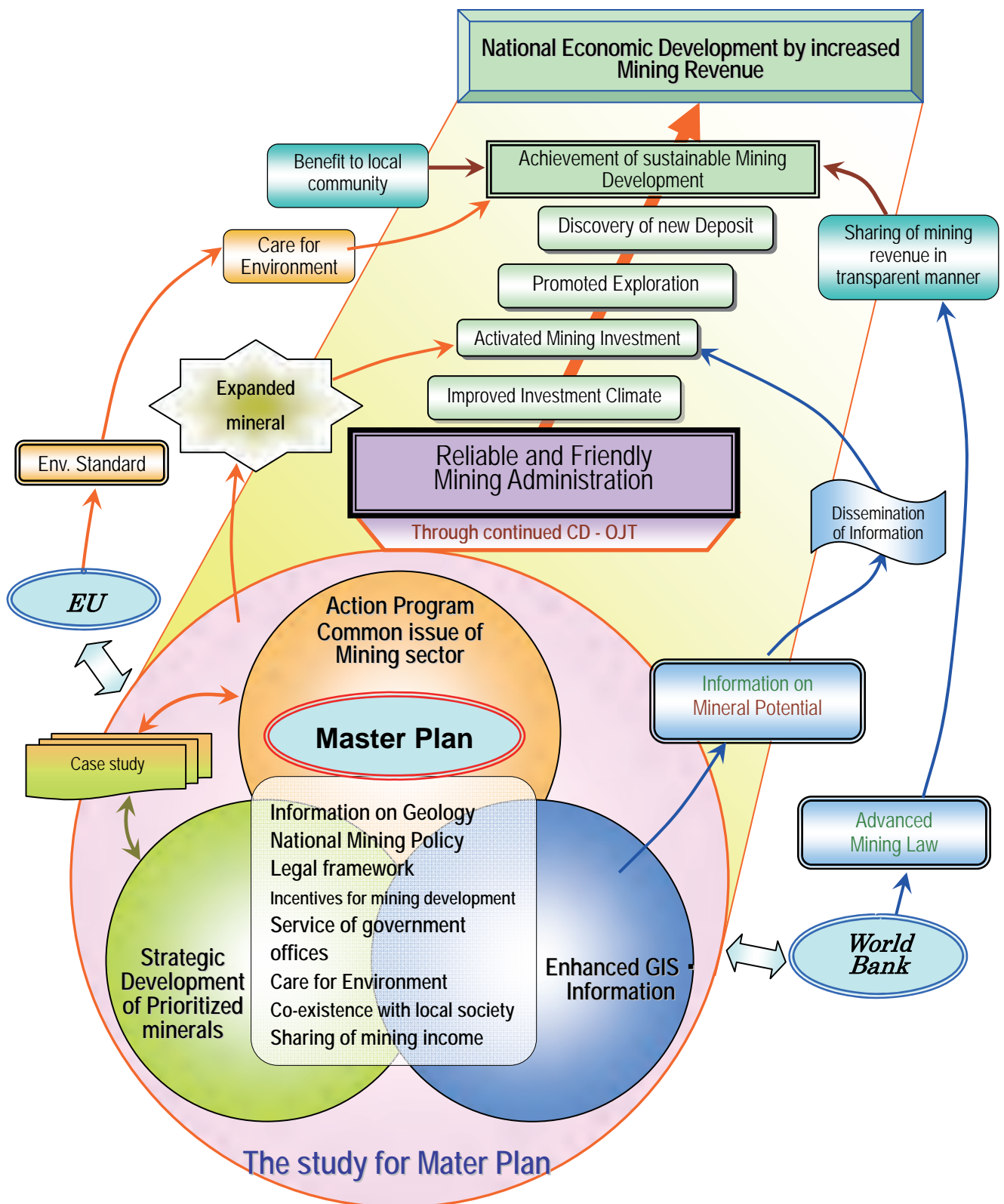
Finally, we hope that our outputs will contribute to development of mining sector of the Republic of Albania and to fostering a long-lasting partnership and friendship between Japan and the Republic of Albania. .

Yours faithfully,

Yoshiaki Shibata
Leader of the JICA Study Team



Location Map of Albania



Concept of the study for Master Plan in Albania

**THE STUDY FOR THE MASTER PLAN
FOR PROMOTING THE MINING INDUSTRY OF ALBANIA**

DRAFT FINAL REPORT

- Summary -

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Glossary

AGS	Albanian Geological Survey
AIDA	Albanian Investment Development Agency
AKBN	National Agency of Natural Resources (AKBN: Agjensia Kombetare e Burimeve Natyrore (in Albanian))
Albinvest	Albanian Investment Agency
CD	Capacity Development
BOT	Build, Operate and Transfer
C/P	Counterpart Personnel
DGNRDP	Directorate General of Natural Resources Development Policies (METE)
DGR	Directorate General of Regulations
DSRMI	Division of Safety and Rescue of Mining Industry
EIA	Environment Impact Assessment
EITI	Extractive Industry Transparency Initiative
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIS	Geographic Information System
GNI	Gross National Income
GoA	Government of Albania
IFC	International Finance Corporation
IFIs	International Finance Institutions
INSTAT	Institute of Statistics
IT	Information Technology
ITNPM	Institute of Mineral Extracting and Processing Technology (previous name of AKBN)
JICA	Japan International Cooperation Agency
JMEC	Japan Mining Engineering Center for International Cooperation
JOGMEC	Japan Oil, Gas and Metals National Corporation
JV	Joint Venture
LMCCD	Licenses and Management of Concessions Contracts Directory
MIGA	Multilateral Investment Guarantee Agency (World Bank)
MCC	Millennium Challenge Corporation
MEFWA	Ministry of Environment, Forests and Water Administration
METE	Ministry of Economy, Trade and Energy
M/M	Minutes of Meeting
MMAJ	Metal Mining Agency of Japan
MMTEC	Mitsubishi Materials Techno Corporation
MoF	Ministry of Finance

NANR	METE in Albanian
NEAP	National Environmental Action Plan
NGOs	Non-government organisations
NLC	National Licensing Center
NRC	National (Business) Registration Centre (QKR in Albanian)
NSDI	National Strategy for Development and Integration
NSSD	National Strategy for Socio-Economic Development (replaced by NSDI)
ODA	Official Development Assistance
OJT	On-the-Job Training
PDAC	Prospectors and Developers Association of Canada (held once in a year in March in Toronto, Canada)
REA	Regional Environment Administration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
SME	Small to Medium sized Enterprises
S/W	Scope of Work
UNEAP	Updated National Environmental Action Plan
VMS	Volcanic Massive Sulfide
WB	World Bank

CHAPTER 1 INTRODUCTION

1.1 Preface

This Report shows the result of "The Study for the Master Plan for Promoting the Mining Industry of Albania".

The study is an international cooperation project implemented by Albanian and Japanese teams aiming at clarifying a roadmap to realize sustainable development of the mining industry under privatization and market-oriented economic reform in Albania.

1.2 Background of the Study

1.2.1 Importance of the Mining Industry in Albania

Albania has rich mineral resources such as chromium, nickel and copper. In the 1970s and 80s, it was the world's 3rd largest producer of chromites and exported significant amount of chromites to other countries including Japan.

Although the production of the mining industry has decreased since the country shifted to a market economy in 1990s, it is expected that the mining industry will again become a core industry of the country. International demand for mineral resources has been increasing in recent years and Albania has been gathering interests from investors as a promising target of mining investment. It is widely accepted that the importance of the mining industry for the Albanian economy has been increasing.

The promotion of the mining industry provide one of strong means for acquiring foreign currency, which in turn will help to improve the quality of life in the country. It is expected that the mining industry can play an effective role in improvement of the quality of life as well as the economical growth in the country.

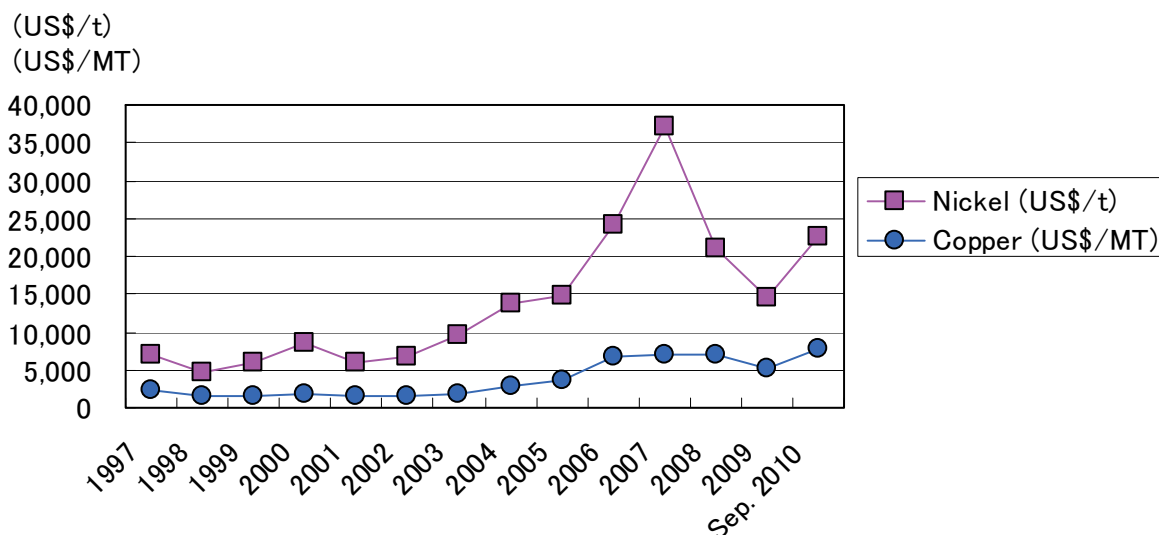


Figure 1.2.1 Copper and Nickel price charts from 1996 to 2010

1.2.2 Restructuring and Privatization of the Mining Sector in Albania

The government of Albania has been making great efforts to promote the restructuring of the mining sector through the process as follows;

- Privatization process (1994 - ongoing)
- Restructuring of state enterprises in the chromium and copper sector (1994 - 1998)
- Administration and legal framework based on laws of market economy (Albanian Mining law of 1994)
- One-stop licensing process on mining activity (2006 - ongoing)
- Concession on the assets of mining industry (1995)
- Closing inefficient mines and conserving potential mines (1993 - ongoing)

As the result of the above-mentioned restructuring processes, almost of all of the mining enterprises have been privatized, with only three state enterprises remaining at the moment. Up to March 2010, 785 mining permits have been issued, among which, 651 are exploitation mining permits. Since the Concession Law was approved in 1995, concessions are given to some foreign private companies such as Italian company “DARFO” who transferred shares to the Austrian-Russia joint venture company “DCM+Terwing and Turkish company BER-ALB”.

1.2.3 Legal Framework of the Mining Industry in Albania

“The Mining Law of Albania” was enforced at 17th February, 1994 and the Law was amended in 2004 and 2007. The title of the law was changed into “ALBANIA MINING LAW”. The strategy of the mining industry development was prepared in 2004 and it was adopted in the National Strategy of Development in 2007. The Ministry of Economy, Trade and Energy (METE) was carried out another revision of the Mining Law and the strategy in cooperation with the World Bank, and the New Mining Law was approved at the Parliament on 15 July 2010.

1.2.4 Activities of the World Bank in the Mining Sector of Albania

The World Bank is a main donor in the sector that has been offering technical assistant supports to revise the Mining Law and the strategy of the mining industry development. Since the volume of input of the World Bank’s revision works is very limited at this time, it is expected that there would not be drastic changes in the Law and the strategy as the result of the works. An implementation of the 2nd phase technical assistant support following the on-going revision works is not yet proposed by the World Bank.

1.2.5 Issues for Further Promotion of the Mining Industry in Albania

As the result of continuous efforts made by METE and other related organizations since 1980s and due to the current active market of mineral resources, the main minerals production in Albania has been increasing gradually in recent years. Especially, the annual production of chromium in 2007 was 325,000 tons which is two times as much as the figure in 2006. However, comparing to the production in 1980s, the production of chromites in 2007 is still very small. This fact shows that further promotion of the mining industry should be carried out based on a long-term plan and a clear strategy under the strong leadership of METE. Analyzing the situation in 2007, where METE has no comprehensive plan and useful tools for the promotion of the mining industry, METE recognized that the following items are needed to be established in order to promote the mining industry skilfully.

- Comprehensive Master Plan for the promotion of the mining industry including individual promotion strategies for each mineral resource such as chromium, nickel, copper etc.
- Useful GIS based database on mineral resources for planning and executing the Master Plan

1.3 Objectives of the Study

The main objective of the study is to clarify a roadmap to realize sustainable development of mining industry under privatization and market-oriented economic reform.

1.4 Outputs of the Study

The main output of the study is a Final Report of the project. The report contains Master Plan for sustainable development of mining sector that is composed of following items;

- A. Mineral-specific development strategies such as chromium, nickel, copper and others.
- B. Action program on selected common issues in the mining industry such as legal framework, organization set-up, investment promotion, environmental protection and so on.
- C. Design of GIS based database on mineral resources.

1.5 Albanian Counterpart

Directorate General of Natural Resources Development Policies (DGNRDP) of METE acted as a counterpart agency to the JICA study team and as a coordinating body to ensure smooth collaboration among relevant organizations of the Albanian counterpart and the JICA study team, and to monitor the progress of the study.

The DGNRDP will set up a working group of the study before commencing the study. The Working Group implement the Study in cooperation with the JICA study team and is fully associated with all phases of the study to ensure effective technology transfer.

The DGNRDP will conduct necessary arrangements with the private enterprises in order to conduct site investigations in their concession areas, if necessity arises.

1.6 Steering Committee

To disseminate information and to ask cooperation for smooth and effective implementation of the Study, key persons of organizations relating mining activity are invited as members of the Steering Committee of the project.

Member of the steering committee of the study are as follows:

- Directorate General of Regulations (DGNRDP) of METE
- National Agency of Natural resources (AKBN)
- Albanian Geological Survey (AGS)
- Ministry of Environment, Forests and Water Administration (MEFWA)

1.7 Principle for Implementation of the Study

In this section, a basic approach for the establishment of a master plan set in "The Study for the Master Plan for Promoting the Mining Industry in Albania" is explained. In implementation of the study, to accomplish expected purpose of the study, a common view is built with the JICA study team and the Albanian counterpart following principle given below in this section.

The purpose of the study is to clarify a road map for realizing sustainable development of mining sector in the midst of the flow of the transition to market economies in Albania. The relationship of the Master Plan which is the output of the project and the roadmap which is expected to take shape following the results of this Study is shown in Figure 1.7.1.

In the study, the master plan, the action program and the roadmap are defined as follows.

Master Plan: A basic and comprehensive plan suggesting a direction to go further taking nation wide issues relating to mining sector into consideration.

Action Program: A plan for improvement of the sector showing procedures and order of necessary action.

Roadmap: A solid plan defining items necessary for implementation such as performance goal, critical points (restriction and difficulty which arise in the course of action) and countermeasures to overcome with priority, and the global image of the rough schedule with a time schedule.

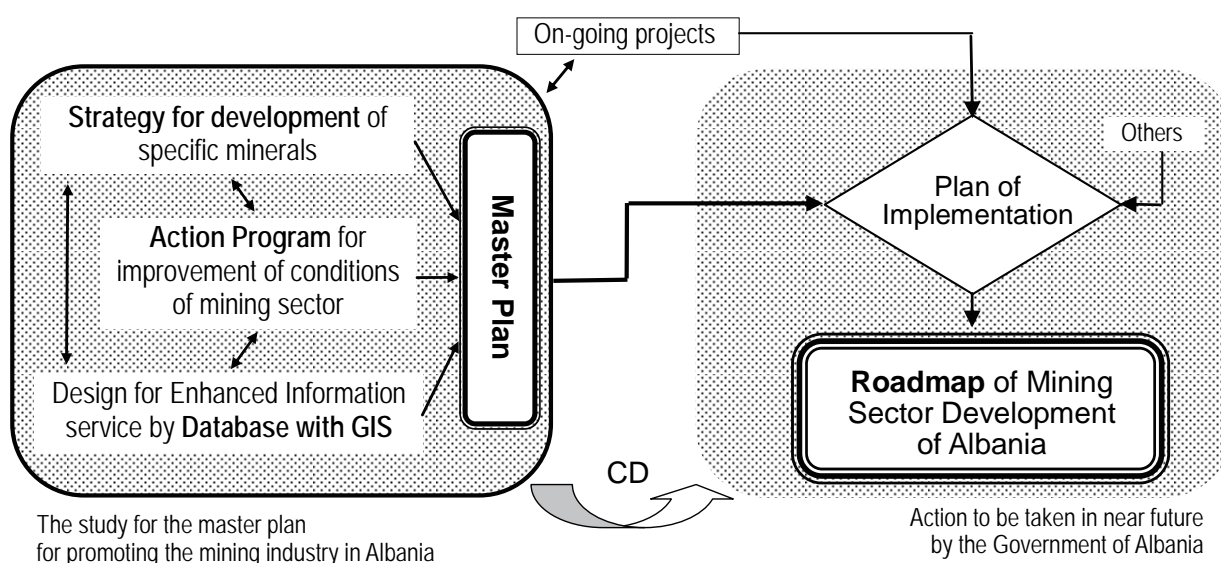


Figure 1.7.1 The relationship of the master plan and the roadmap

1.8 Background on Capacity Assessment and Development

The definition of Capacity Development is “the process by which individuals, organisations, institutions and societies develop ‘abilities’ (individually and collectively) to perform functions, solve problems, and set and achieve objectives;” (this is the UNDP / JICA definition). This definition also perceives the concept as three inter-connected layers of Capacity Development:

Level 1 - Individuals

Level 2 - Organisations

Level 3 - Institutions / society

(Source: Capacity Development Handbook for JICA Staff, March 2004)

<http://www.jica.go.jp/english/publications/reports/study/capacity/200403/pdf/200403.pdf>

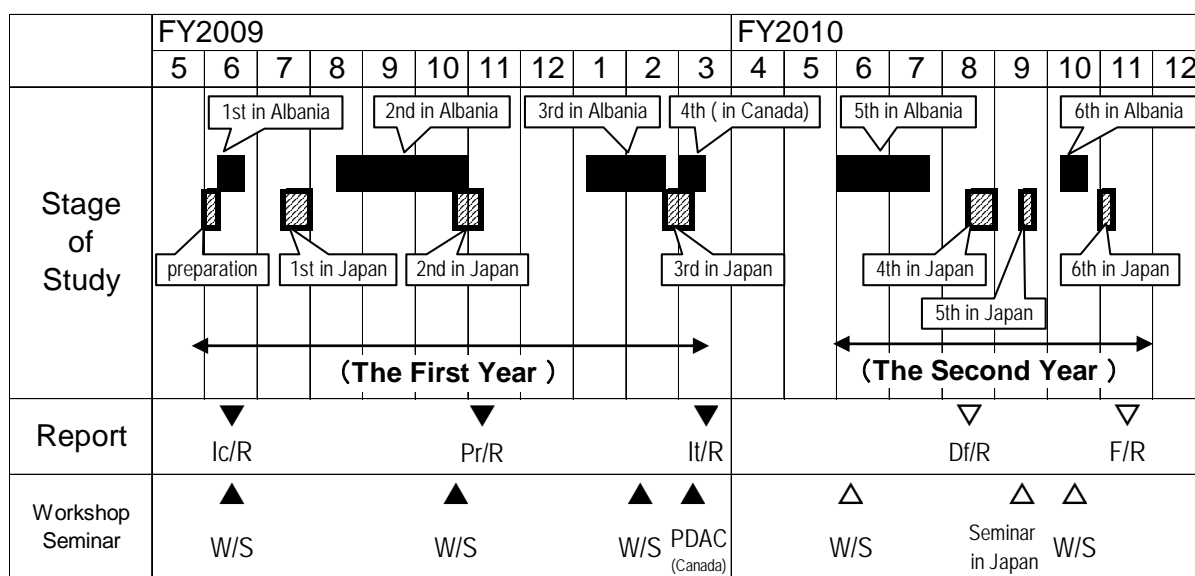
The main elements of Capacity Development with respect to these three levels, are provided in the table below.

Table 1.8.1 Main elements of Capacity Development with respect to these three levels

	Main elements of capacity development
Level -1 Individuals	Focus capacity development activities on developing knowledge and skills of individuals. The aim is to enable individuals to be able to achieve objectives using their own knowledge and skills.
Level -2 Organisations	Focus capacity development activities on strengthening the organisational framework / administrative structure so that an organisation can achieve its objectives. The capacity development activities therefore include support in assignment of roles and responsibilities and in the decision-making process, development of management systems, etc. The development of the organisational framework is achieved by focusing on the capacity of individual employees (Level 1), physical assets (computers, databases), organisational strategy and structure, management systems, leadership, human resource management, etc.
Level -3 Institutions/ society	Focus capacity development on developing the wider frameworks for the formation and implementation of policies, strategies, laws, etc; as well as facilitating communication and co-operation between relevant organisations.

1.9 Plan of the Study

General plan of the study is shown in the Figure 1.9.1. The survey consisted of 2 years activities.



Ic/R: Inception Report, Pr/R: Progress Report, It/R: Interim Report, Df/R: Draft Final Report, F/R: Final Report

Figure 1.9.1 The whole process of the study

1.10 Progress of the Study

1.10.1 Preparation Work (May 2009)

In May 2009, Preparation Work was done in Japan. Details of the works are as follows:

- Collection and compilation of information, and preliminary analysis
- Discussion of basic policy of the Study in general, solid contents and the way of implementation
- Preparation for the 1st Study in Albania
- Preparation of the Inception Report

1.10.2 The 1st Study in Albania (June 2009)

During the 1st study in Albania, the first workshop is held for presentation and discussion of the Inception Report. After the approval of the Inception Report by steering committee, the actual work of the study starts from collecting and analyzing the information and data which are only available in Albania. Minutes of Meeting on the first steering committee is shown in Appendix 1.

A capacity assessment of related institutions and counterpart is conducted for planning the capacity development program, taking consideration of the need for the implementation of the Master Plan feasible to the counterpart.

Prior to formulation of GIS database, the study was carried out to understand present situation of hardware, software and already existing GIS database of AGS. Further, the accuracy and style of mineral resource data already collected by AGS are reviewed.

1.10.3 The 1st Work in Japan (July 2009)

In the 1st work in Japan, the work of understanding and analysis of the present situation based on the information and data collected during the first study in Albania is conducted for the following topics.

- position and role of mining sector in the national development plan (government policies of mining sector)
- government policy for mining
- environment of investment
- potentiality of mineral resources
- international competitiveness
- human resources development for mining sector
- aid activities related to mining of other donor
- infrastructure related to mining

1.10.4 The 2nd Study in Albania (From August to October, 2009)

The collection and analysis work carried out during the first study in Albania was continued in the 2nd study and the understanding of present situation on activities in Albanian mining industries and its analysis have been carried out. Furthermore, the understanding of present situation of mining industry of specific minerals has been executed as well as the study on an appropriate direction of action program.

In order to determine the strategy of development of mining by respective kind of minerals, i.e. chromium, nickel, copper and industrial materials which are the major mineral products in Albania, the collection of information and data on various items, such as reserves, mining methods, mineral dressing, smelting, infrastructure, organization/structure, economic competitiveness, and potential

state in future, was carried out, and also typical mines and facilities in smelters, etc. have been inspected.

As the information and data on mineral resources, such as ore reserves, etc., are being expressed in compliance with the standards of previous USSR (Union of Soviet Socialist Republics) in Albania, studies on the measures to evaluate those data and information in accordance with the International Standards currently being applied have been carried out. For the purpose to promote mutual understandings between counterparts and the JICA study team and capacity development of counterparts, a working group on the appropriate methods and procedures for estimating ore reserves was organized, and the overall meeting was held.

In addition, for the preparation of GIS data base, confirmation work on the hardware and software currently being used has been carried out continuously from the first study in Albania, and the state of the GIS data base being prepared was investigated. The present situation of utilizing GIS in Albania not only by governmental organization but also by private enterprises was studied. A working group was organized for studying and investigating issues for GIS data base being planned and prepared on the basis of understanding of present situation, and an overall meeting was held.

The second workshop was held and the present situation and issues of respective items collected and investigated at the second study in Albania were presented by Japanese delegation, and the final report from the World Bank and the new mining law were explained by the counterpart. Several discussions were made on these items presented. The program of workshop is attached in Appendix 2.

Upon the completion of the second study in Albania, the draft for progress report has been prepared in order to summarize the result of investigations done until that time.

1.10.5 The 2nd Work in Japan (From October to November, 2009)

In the 2nd work in Japan, the review and additions/correction work on the draft of progress report have been conducted.

1.10.6 The 3rd Study in Albania (From January to February, 2010)

The collection and analysis work of related information was continued in the 3rd study. On the basis of results from these analyses, the development strategies for respective kinds of minerals were clarified and a preliminary action program related to institutional, organizational and legal issues was discussed and prepared as well. Moreover, the basic concept of the GIS database was also discussed and determined. At the end of the study, the third workshop was held to have sufficient understandings of the study results between both parties of Japan and Albania. The draft for interim report was prepared in order to summarize the results until the 3rd study in Albania.

○Determination of development strategies for respective kinds of specific minerals

In order to propose the respective development strategy of specific minerals such as chromium, nickel, copper and non-metallic minerals, in order to achieve the efficient and consecutive development of mining sector, the following items were discussed in detail for respective kinds of minerals.

- type of ore and ore deposits, ore grade, scale of ore deposits
- distribution of ore deposits
- potential of new ore deposits to be found
- present state of dressing, smelting and refinery plants
- the method of ore treatment (i.e. dressing, smelting and refinery) being applied
- material flows and marketing

○ **Determination of basic plan on action program**

The collection and analysis work of related information to institutional, organizational and legal issues of mining activities was continued in the third study successively from the second study in order to propose action program of common issues in the mining field, achieving the consecutive development of mining sector of Albania. As the result, for the sustainable development and strengthening of the mining sector in Albania, it is clarified that the strengthening of aspects related to all the main components of the institutional, organisational and legal framework is important. These main components were discussed in detail and each preliminary action program was proposed as a draft.

A working group meeting was held as many times as possible during the 3rd study by every respective themes such as action program, mineral-specific development strategies for respective kind of specific minerals, GIS database and environmental consideration. The third workshop was held to have sufficient discussions about the study results at the end of the study (Appendix 3).

1.10.7 The 3rd Work in Japan (From February to March, 2010)

During the 3rd work in Japan, the review and additions/correction work on the draft of interim report were executed.

A training course in Japan was carried out focusing on GIS technology and the strategy and administration of mineral resources database from 16th February to 26th February. The number of participants was 4 staffs from C/P organization.

1.10.8 The 4th Study in Canada (From March, 2010)

A presentation at the PDAC (Prospectors and Developers Association of Canada) international conference in Toronto, Canada was made by the study team to promote mining investment from foreign companies (refer to Attached Appendix 6). Counterparts from Albania also participated and examples of international best practices were discussed.

1.10.9 The 5th Study in Albania (From June to July, 2010)

In 5th study in Albania, three (3) times of working group meetings were held in order to prepare and to complete final drafts of the action program and the master plan.

As to the working group of development strategy for respective minerals, many discussions and reviews were carried out between key members of the group. During the period of this study, the workshop was held (please refer to Attached Annex 2 of Appendix 4), and the action programs (draft) prepared by respective working groups were presented and explained for collecting wide opinions.

Also, conceptual design work on the construction of GIS data base was carried out as well as carrying out the study for conceptual design on the website. The draft final report was prepared in accordance with these results.

○ **Preparation of Development Strategy for Respective Minerals**

As to chromium, nickel, copper and non metallic minerals, the priority areas to be developed were selected in accordance with the basis of selection prepared and clarified with due consideration of possibilities on future increase of mineral resources and of the competitiveness in international markets. Also, the northern mineral deposit areas, where could not be inspected during the 2nd and the 3rd investigation and study periods, were inspected and the present state of developing mines and mineral exploration was assessed.

○ **Preparation of Action Program**

The major twelve (12) elements in the relational framework of organizations, regulations and laws in the mining industry sectors, which were identified and developed at the execution of 3rd field study in Albania, were discussed and reviewed by the working group. Discussions were made on the basis of this working group for the establishment of an action team which is a permanent organization responsible for carrying out the future action plan and/or policy.

1.10.10 The 4th Work in Japan (August, 2010)

During the 4th work carried out in Japan, the draft final report was prepared in accordance with the results obtained so far.

1.10.11 The 5th Work in Japan (September, 2010)

As the 5th work in Japan, a seminar on the investment to mining industries was held in Tokyo. Programmes of the seminar are as shown in Appendix 7.

1.10.12 The 6th Study in Albania (From September to October, 2010)

In the 6th study in Albania, presentations and explanations on the draft final report were carried out to relevant persons, and discussions were made between leaders, etc. of the respective working groups in order to complete the final report. Also, the result of study for this master plan was presented, and the workshop was held by the attendance with persons from the governmental organizations other than counterpart and private sectors as well as the counterpart in order to obtain various opinions on the same. Programmes of the workshop are shown in Annex 2 of Appendix 5.

1.10.13 The 6th Work in Japan (November, 2010)

During the 6th work carried out in Japan, the final report was completed in accordance with the result of discussions on the draft of the same carried out with the counterpart.

1.11 Issues and Tasks clarified during the Execution of Study

Issues and tasks found and clarified at the carrying out of study are as follows:

- According to the result of General Election held on June, 2009 in Albania, there were wide personnel changes in the organization of METE and related organizations under new minister. As these personnel changes occurred in October, 2009 after approximately four (4) months from the General Election, the time to discuss the key issues in detail with leaders of counterparts was insufficient during the second study. Furthermore, the time to discuss with leaders and managing staffs of the counterpart were restricted and limited during the period of carrying out 2nd to 5th field studies since the change in the government organization and personnel changes have been continuously made in Albania.
- Because the mining areas are located in the mountains, the conditions of access roads are generally not good in condition. Albania has many precipitations in winter, and therefore snow fall and/or freezing are likely occurred in mountain side and the site investigation of mining areas in winter season would be limited. Since the Albania has had a much amount of rainfall in this year, landslides and floods were occurred in the northern part
- The capacity assessment has shown that there are currently no engineers with the necessary wide experience in GIS technology AGS or AKBN, or elsewhere in METE and other counterpart organisations. At present, only about three (3) engineers have some experience and understanding in GIS in counterpart organisations. In particular, there is no GIS engineer in AKBN at the stage. For this reason, it is necessary for such engineers to be

educated and trained as soon as possible. Training elsewhere in METE is also needed to raise levels of understanding of the application of GIS.

- At the start of the project, there was not much progress in the sharing of information and data between ministries and/or governmental organisations, and such opportunities had not been positively created at this stage. This was one of the constraints to progress in the development of the mining sector. The working group meetings and workshops in this study have been opportunities to resolve such problems and have contributed to improve communication and cooperation.
- It should be noticed as a serious matter that sufficient mining specialists are not always available in the governmental organization, also especially less young staffs who have the knowledge of mining industries and expected to be management staffs in future.

1.12 List of Members participated in the Execution of Study

The members who are participated in carrying out of the study are as listed in Table 1.12.1 below:

Table 1.12.1 Members list for the execution of study

Name	Assignment or Organization
<JICA> Mr. Yoshiki EHARA Mr. Ken YAMADA Mr. Sokol KONOMI	Assistant Director, JICA Headquarter Deputy Resident Representative, Balkan Office Technical Coordinator in Albania
<JICA Study Team> Mr. Yoshiaki SHIBATA Mr. Minoru FUJITA Mr. Masatsugu OKAZAKI Mr. Ken NAKAYAMA Mr. Naotoshi NEMOTO Mr. Michael WENBORN Mr. Mikio KAJIMA Mr. Zenichi CHIBA Mr. Hiroshi HYODO Ms. Akiko OZAWA	Team leader / policy for promotion of mining sector Policy for promotion of mining sector / development of human resources / promotion of investment Strategy for development of minerals (Cr and others) / geology / statistical data on mineral resources Strategy for development of minerals (Cu and Ni) / geology Strategy for development of minerals (processing) Institution / regulation / legal framework Management of environment GIS database GIS database / coordinator Coordinator
<Albanian Study Team> Dr. Kristo RODI Mr. Dritan HYLLI Mr. Pjeter DEMA Mr. Sokol MATI Ms. Mimoza SIMIXHIU Mr. Zef LLESHI Mr. Ramiz BALLA Ms. Luljeta KRAJA Mr. Adil NEZIRAJ Ms. Musli DARDHA Mr. Gyovalin LEKA Ms. Edlira PLAKA Mr. Enkelejda GRAZHDANI Mr. Albert AVXHI Ms. Lavdie MOISIU Mr. Milo KUNESKA Mr. Taulant MUSAELLIU Mr. Gjergj THOMAI Mr. Edmond GOSKOLLI Mr. Kleves JANKU Mr. Adhurim CAUSHI Mr. Ismail MEMA Mr. Gole VASHA Mr. Haki DISHA Mr. Lama STOJA Mr. Bardhyl SHUSHKU Mr. David NACO Mr. Ardit ISLAMI Ms. Laureta DIBRA Ms. Blerta KERCUKU	Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Ministry of Economy, Trade and Energy Albanian Geological Survey Albanian Geological Survey Albanian Geological Survey Albanian Geological Survey Albanian Geological Survey Albanian Geological Survey Albanian Geological Survey National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) National Agency of Natural Resources (AKBN) Ministry of Environment, Forests and Water Administration Ministry of Environment, Forests and Water Administration

CHAPTER 2 FUNDAMENTALS FOR PROMOTING MINING INDUSTRY

2.1 National Economic Development Plan

There are a number of existing policies and strategies relevant to the mining sector in Albania. The development of the Master Plan for Promoting the Mining Industry of Albania has taken into account, and built on, these policies and strategies. The main policies and strategies that are relevant are:

- Programme of the Government of Albania (2005 to 2009).
- National Strategy for Development and Integration (2007 to 2013) (Government of Albania).
- Business and Investment Development Strategy 2007 to 2013 (METE) (2007).
- Strategy for the Development of the Mining Industry (METE) (2005).
- Updated National Environmental Action Plan (UNEAP) (2001)

The above programs and strategies are outlined in more detail in Chapter 3, (Sections 3.3.1). In addition, there are several donor programmes and projects that are relevant to the mining sector, in particular a project on mining sector reform, restructuring and future prospect by the World Bank in 2009 (Section 2.3.1), as well as the MCC Albania Threshold Program (Section 2.3.2). The development of the Master Plan has built on the core findings and recommendations from the World Bank and other programmes.

2.2 Economic Conditions

2.2.1 Macro Economy

The macroeconomic growth averaged around 6% from 2004 to 08. Inflation is low and stable with 3% inflation. Despite the recent global economic slowdown, Albania has been able to preserve a stable macroeconomic situation with growth for 2008 estimated to reach 6%, but declined to about 2% in 2009. The economy is bolstered by annual remittances from abroad representing about 15% of GDP, mostly from Albanians residing in Greece and Italy; this helps offset the towering trade deficit. The agricultural sector accounts for over half of employment but contributes only about one-fifth of GDP.

Macro Economic Indicators

	2007	2008	2009	note
GDP (purchasing power parity) US\$	20.85	22.13	22.59	Billion US\$, estimate
Annual GDP growth (%)	6.00	6.10	2.10	estimate
GDP per capita (PPP) US\$	5,800	6,100	6,200	
Budget				Billion US\$
Revenue	n.a.	n.a.	3.46	2009: estimate
Expenditure	n.a.	n.a.	4.10	

Source: CIA, USA

2.2.2 Mining Sector

Mineral production of Albania is summarized as below:

Table 2.2.1 Mineral production (average figure around 2008)

Mineral	Value Million US\$	Number of Producers (including Small scale)	Per one unit (simple average) US\$
Oil & gas	200~300	2	100,000,000~ 150,000,000
Metallic minerals	100	150~250	667,000~400,000
Non-metallic, lime stone	15~20	450	33,300~44,400
Total	315~420	600~700	* note

2.3 Investment Climate

2.3.1 Foreign Direct Investment

Although FDI has increased over the last few years, it still remains among the lowest in the region with a large part of it coming from privatizations.

The EBRD (and World Bank) carry out much research into the business environment, and this provides a good summary that the Government has been making progress overall in facilitating investments and private sector participation, although there are still many areas that require improvement. The summary is cited as followings:

The Government has made important progress in improving the business climate over the last years. In 2006 the Government launched the “Albania One Euro” initiative to attract FDI and announced construction of industrial zones and the sale of land and other state property at symbolic prices.

In 2007/08 the government introduced a 10 per cent flat tax rate on personal and corporate income and implement a range of administrative reforms to increase tax revenues. The creation of a new business registration centre in 2007 reduced the time and cost required to open a business. As a consequence, the number of newly registered businesses increased by 34 per cent in 2008. New laws on concessions and on public procurement were adopted to approximate European standards. Bottlenecks in the bankruptcy process were addressed by introducing amendments to the bankruptcy law, although the law is largely untested. In June 2009, a one-stop-shop for licences and permits was opened, and legal amendments to reduce the time for issuing construction permits from 60 to 45 days were adopted. These improvements were reflected in the World Bank’s Doing Business 2010 report, which ranks Albania 82nd out of 183 countries (up from 135th in 2008).

However, weak law enforcement and high perceived levels of corruption remain important impediments to business development. Although the reported frequency of corruption in the courts and customs service has improved in recent years, firms still report above-average levels of corruption in the tax administration, according to the latest EBRD/World Bank Business Environment and Enterprise Performance Survey (BEEPS).

The BEEPS results point to serious concerns amongst business managers in the area of land titling and ownership. Despite recent improvement in its Transparency International Corruption Perceptions Index (CPI) score, Albania still ranks 85th out of 180 countries, among the lowest in South East Europe and significantly below the OECD average.

Source: EBRD Country Strategy for Albania (2009)

<http://www.ebrd.com/about/strategy/country/albania/albania.pdf>

2.3.2 Openness to Foreign Investment

To increase FDI, the Government of Albania intensified its efforts to implement a number of fiscal and legislative reforms to improve the business climate. Those reforms, plus the signing of the

Stabilization and Association Agreement with the EU in June 2006, and the invitation to join NATO, could help Albania improve its FDI significantly. 2007-2008 witnessed an increase in investor interest in a wide range of sectors, with energy generation, cement production, mining, oil and industrial parks heading the list.

The legal framework to encourage investment is already in place. Law 7764 "On Foreign Investment," dated November 2, 1994, was designed to create a favorable investment climate for foreign investors in the country. The law offers considerable guarantees to all foreigners (either physical persons or legal entities) willing to invest in Albania. Such provisions include:

- No prior government authorization is needed and no sector is closed to foreign investment.
- There is no limitation on the percentage share of foreign participation in companies - 100 % foreign ownership is possible.
- Foreign investment may not be expropriated or nationalized directly or indirectly, except for designated special cases, in the interest of public use and defined by law.
- Foreign investors have the right to expatriate all funds and contributions in kind of their investments.

There are limited exceptions to this liberal investment regime, most of which apply to broadcasting, health services and legal services. Restrictions on the purchase of real estate are relevant: agricultural land cannot be purchased by foreigners, but may be rented for up to 99 years; commercial property may be purchased, but only if the proposed investment is worth three times the price of the land. There are no restrictions on the purchase of private residential property.

Investors in Albania are entitled to judicial protection of legal rights related to their investments. Parties to a dispute may agree to arbitration. Foreign investors also have the right to submit disputes to an Albanian court. Provisions regarding domestic and international commercial arbitration are incorporated into the Albanian Code of Civil Procedure. As a practical matter, however, corruption remains a problem in the judicial system, and some foreign investors have experienced delays and losses as a result.

2.4 Information Centre in Tirana for Foreign Investors

Albania Business and Investment Agency (AlbInvest) under the METE is providing some information relating to investment in its website. Information provided by AlbInvest is useful as a first contact point in Albania. In July 2010, AlbInvest was restructured as Albanian Investment Development Agency: AIDA.

At the time of October 2010, the Web site of AlbInvest was providing such information as followings (updated in March 2008): Investment Climate, Basic Economic Indicators, Trade and Free Trade Agreements, Labour Costs and Regulations, Education, Skills and Labour Availability, Company Registration, Taxation, The Albanian Customs System, Property, Sites and Buildings, Transportation and Logistics, Utilities and Costs (Electricity, Water, Telecommunications, Internet Service), Useful Contacts (Last updated: February 2007)

CHAPTER 3 PRESENT SITUATION OF MINERAL RESOURCES MANAGEMENT

3.1 Modern History of Mining Sector of Albania

For understanding of the present situation, a brief history of the privatization of the mining sector of Albania is given below; based on “Sustainable development and systems for management of Mining Sector in Albania, NATO Science Series, IV Earth and Environment Science”.

3.1.1 Mineral Production by State Enterprises in Centrally Planned Economy

The industrial exploitation of the solid minerals in Albania began before the Second World War in the form of concessions given mainly to Italian foreign companies. The Mineral Industry after the World War II was established as a State Enterprise based on the exclusive right of the State over the explored and unexplored mineral deposits and was developed on the basis of a total exploitation of the mineral resources ignoring the criteria of economic efficiency, protection of the environment, etc. To this end Albania was developed as an intensive mining country consisting of numerous mines and processing units of chrome, copper, coal, ferronickel, limestone, bitumen, tar sand and etc.

After 1991, the transitional period towards market economy system caused a sharp decline of Albanian mineral production caused by;

- Gradual reduction of geological reserves of industrial importance.
- Transition period itself and the confrontation of the Albanian mining production with world market competition.
- Poor management at enterprising and ministerial levels.

3.1.2 Legislation of Mining Sector

Different legal actions were carried out starting from 1993 toward restructuring and privatization of mining industry. The latest legislation is Law no. 10304 of 15 July 2010 known as the New Mining Law.

3.1.3 Privatization of Mining Industry of Albania

1) General background

The first law on privatization was approved in August 1991. The law allowed a wide range of methods including auction, concession bids, direct sales, free distribution of shares, etc.

SMEs have been disposed of largely through employee buy-out or auction. Nearly all SMEs that had not been privatized during the early years of the process were sold or liquidated during 1997 and 1998. Many of them were economically not viable, hence they were liquidated and their assets were transferred to local authorities.

In March 1998, a more flexible regulatory framework for privatization was approved and in May 1998 a draft privatization plan was released, according to which the publicly owned business could be sold below book value, which, in many cases, did not reflect market values. This enabled the Government to divest the state share in joint ventures to private sector counterparts and private enterprises in strategic sectors.

The Government intends to privatize (at least partially) all main state monopolies, including transport, telecommunication, energy, mining and water. Since then, the Government has been looking for

strategic investors for these sectors. The privatization method will be by international tender on a case-by-case basis. The cash received will be used to reduce the budget deficit.

Some of the bid companies included in the privatization list are:

- Telekom Shqiptar – Albania's fixed network telephone operator
- Albanian Mobile Communications (AMC) – The only mobile phone operator in the country (Already privatized)
- Korporata Energetike Shqiptare (KESH) – The State electricity producer
- Albpetrol – The state oil company, which currently has joint venture agreements with several foreign oil companies
- Albkromi – The state chrome mining company (completely privatized to DARFO, Italy and BER ONER, Turkish company)
- Albaker – The state copper mining company (already privatized in the form of concession to Turkish company BER ONER)
- Saving Bank of Albania – The second biggest bank in Albania, etc.
- National Commercial Bank of Albania – The second biggest second-tier bank in Albania (already privatized)

The impossibility for the State administration to successfully manage (in Albania as well as in any other country of the world) the mineral potential imposes the necessity to privatize the mining industry.

The efforts to rehabilitate the mineral industry started in 1993, resulting only in losing the majority of coal and ferronickel mines and some of the smaller copper mines.

2) Privatization Targets

Privatization targets in Albania are summarized as follows:

- Maximum attraction for the initial investments from potential local and foreign investors, without ignoring the continuation of the existing investment.
- The presence of big strategic mining companies of the existing investments.
- Increase of the stream revenues from private mining sector, in combined forms of taxation, royalties, custom duties, etc.

3.1.4 Post-privatization

Attention should be drawn also to the sustainability and environmental exploitation of mineral resources. That means, in order to ensure a normal running of the licensed private mining companies, the State (Government) will retain control of the following issues related to the private mining activity:

- Completion of the missing geological and other mining data.
- Follow-up of existing environmental regulations and the new ones to be updated.
- Harmonization of Albanian regulations with EU Mining Directives toward short term and long term compatibility

An additional issue, accompanying the start-up of private mining companies, relates to the local authorities. Albania is a country where local authorities do not have the capacity to manage the development of natural resources, especially major and specific projects like those of mining, oil, energy, water, etc. The co-operation between Institutions, the State (General Directorate of Mines) and consultants is of critical importance for the operation of private mining SME.

The division of the ALBKROM created a limited number of big chrome mines and numerous opportunities for private SME mining.

Generally there was not more than one application for each mine because the separated small mines were already exploited many years ago. But some of them represent interesting profitable mining opportunities for a SME mining. In such cases all applications are subjected to a tender / competition. Advantages are given to the companies represented by former mining staff. Anyway, the best decision as to whom to award the mining license should be taken in co-operation of the local authorities with the national authorities (Ministers) & national research centers and institutions.

Since there is no intense competition so far, the negotiations starts once it was proved that the applying company has the capacity to run and finance the project. In case when more than one company apply for a mining concession or privatization, then, a bidding procedure was organized under the supervision of the Ministry of Public Economy and Privatization.

Recent negotiations have finalized the copper industry Concession to BER ONER, while the Chromium Industry of Bulqiza Chromium mine (4 million tons of industrial reserves) and Burrell Fe-Cr smelter are transferred to DARFO. In the latter concession agreement, the areas of nickel deposits in the south-east of Albania were negotiated with the Australian company Adriatic Nickel.

Another issue of privatization is further unemployment in the first phase. The Trade Unions did not agree with it. That is why there must be found a specific strategy to negotiate with the leadership of Trade Unions in order to convince them that the privatization cannot be stopped and that it is absolutely indispensable for its positive impact on economy.

The experience has shown that the Trade Unions may be the major and most complicated factor, which can stop the privatization process for some time, as it has happened in Germany and Romania recently. In any case, it is necessary to find a sustainable formula of privatization associated with social assistance to the unemployed working force. A special law was approved by the Government of Albania to the effect that miners will be paid from one to two years if they are made redundant during the privatization or mining closure procedures. Gradual growth of private mining industry in the sector of chrome and construction materials had the positive impact on employment of the most skilled workers and engineers.

3.1.5 Establishment of Market – Economy - Oriented Policy

It is well known that the main source of the Albanian economy before 1990 had been the mining industry. The mining sector was an integrated activity starting from exploration, mining development, exploitation and mineral processing, smelting and refining, metal fabrication as domestic activity and export of minerals and metal products.

After centrally planned economy had ceased, mining sector reform started by transforming the state mining companies into private companies.

In November 2005, a comprehensive report was prepared under the title of “**Strategy for the Development of the Mining Industry** Based on the Regional Policies Designed for the Effective Management of the current Mineral Resources and Those to be Discovered over a 15 year Long Period”. This comprehensive volume contains key topics of subordinate 3 volumes on Chromites, Copper and Nickel and Industrial minerals.

The mining strategy was, then, integrated into wider framework of national policy and a volume of the “**Business and Investment Development Strategy (2007 - 2013)**” prepared in February 2007,

Further, “National Strategy for Development and Integration: NSDI” was established in March 2008 aiming to be a member country of the EU. To attain this goal, a lot of existing legal framework of Albania should keep concordance with EU criteria, including mining legislation and policy. A progress report of this National Strategy for 2006 - 2007 was published in December of the same year.

At the end of September 2008 the World Bank held a workshop on “Challenges to Sustainable Mining Sector Development, Reform, Restructuring & Future Prospect”. JICA mission staying at Albania at that time attended this workshop.

The World Bank prepared a report titled as “Mining Sector Reform, Restructuring and Future Prospects”, the direction expressed at the Workshop. This report is released on the World Bank Website as Report No. 47539-AL in June 2009.

Foreign investment is expected to be a major drive force of mining development and materials introducing investment climate have been prepared and released at the website of the Albanian Business and Investment Agency: Albinvest. The Albinvest was reorganized as “Albanian Investment Development Agency: AIDA” in July 2010 to enforce its function.

To improve the licensing management, the “National Licensing Center: NLC” was established by the national law no. 10081 of February 2009. For mining activity, mining licensing is prerequisite. Therefore quick response and transparency in the process of granting license to applicants are of the most important interest for investors. Mining license information is to be integrated on the database of the National Registration Center (NRC) in future.

Responding to those requirements, a draft of the new mining law has been prepared by The Ministry of Economy, Trade and Energy (METE) in 2009. This draft defines a mining strategy as well as the procedures of granting mining rights.

In the volume of “Business and Investment Development Strategy (2007 - 2013)”, a specific chapter “DEVELOPMENT of THE MINING INDUSTRY” is prepared. This chapter contains such items as followings;

- Reform in the Past and Current Situation
- Mining Sector Goals
- Objectives are defined with time schedule

3.2 Mining Administration

The Ministry of Economy, Trade and Energy (METE) is the most important ministry responsible for the mining in Albania. METE also consists of semi-independent Institutions that report directly to the Minister. These include the National Agency of Natural Resources (AKBN) and the Albanian Geological Survey (AGS), both of which are very relevant to the development of the mining sector, as well as the National Registration Centre: NRC, National Licensing Center: NLC, the Central Technical Inspectorate and the Mining Inspection and Rescue Unit. The dependent institutions report directly to the Minister.

In July 2010, METE’s organization structure was revised. Before this organizational restructure, the General Directorate of Regulations and the General Directorate on Industrial Policies was a core general directorate. The function of the former General Directorate of Regulations was transferred to each industrial sector under relevant General Directorate.

3.3 Mining Policy

Mining policy of Albania has been integrated with national development plan such as industry development strategy set on the wider prospect of whole national industrial sectors.

3.3.1 Programme of the Government of Albania (2005 to 2009)

The overall Programme of the Government of Albania provides the principles and plans of the government for the 5-year term of office. The plan is likely to be updated during the initial stages of the new term of Government (an election was held in Albania in June 2009). The core components of the Programme, which are relevant to the mining sector, are listed below.

Government Programme 2005 to 2009

The Government Programme (2005 to 2009) in Albania includes the following components, which are relevant to the development of the mining sector:

- Rapid and sustainable economic and human resource development
- Opening of trade, free and fair competition
- Attracting foreign investments
- Fiscal administration and policies
- Development priorities and budget expenditure
- Economic development and supporting policies
- Strengthening the institutional capacity and human resources for law enforcement
- Information and documentation system (including land and property registry)
- Transparency and Prevention of Corruption
- Developing infrastructure
- Environmental protection and the sustainable use of natural resources
- Reduction in unemployment
- Poverty reduction and social care
- European integration

3.3.2 National Strategy for Development and Integration (2007 to 2013)

The National Strategy for Development and Integration (2007 to 2013) combines the principle agendas of the Government of Albania. As well as the overall goal of economic and social development, the National Strategy for Development and Integration (NSDI) includes integration into EU structures (including alignment with EU legislation), as well as the objective of achieving the Millennium Development Goals.

The NSDI has replaced the National Strategy for Socio-Economic Development (NSSD), which was the main strategic document of the Government of Albania until 2006.

Within the National Strategy for Development and Integration, the objectives for the mining industry are confirmed as:

- Assessing the mineral potential of the country.
- Ensuring that traditional and new minerals are effectively produced and promoted.
- Increasing the range of minerals produced.
- Ensuring that the minerals are fully and efficiently exploited.

3.3.3 Strategy for the Development of the Mining Industry based on the Regional Policies designed for the effective management of the current Mineral Resources and those to be discovered over 15 year long period (2005)

The Strategy for the Development of the Mining Industry was developed in 2005 by the National Agency of Natural Resources (AKBN) and the Albanian Geological Survey (AGS) on behalf of the Ministry of Economy, Trade and Energy (METE) under the title of “The Strategy for the Development of the Mining Industry based on the Regional Policies designed for the effective management of the current Mineral Resources and those to be discovered over 15 year long period”.

The Strategy outlines goals and priorities for the sector, and covers wider aspects of the development of the mining sector, including legislation, licensing, concessions, and privatisation; as well as technical aspects and strategy for specific minerals.

The Strategy identifies particular priorities for the mining sector, including:

- Completion of the amendments and adoption of mining legislation, including amending the overall Mining Law and development of sub-legislation and regulations within the framework of the Mining Law.
- Implementation of policies to promote investment in existing mining activities and to promote and invest in widening the types of minerals to be exploited.
- Planning and completing the closure of inefficient mines, including identification of the environmental and other risks, and implementation of monitoring programmes to measure parameters related to these risks.
- Promoting the use of high standards of technologies in the mining sector to ensure continuous development of the industry.
- Setting the framework for private sector participation in the mining sector.

The Strategy has considerable detail on some aspects of the framework for development of the mining sector. However, the implementation of the Strategy would be facilitated by a precise action plan containing realistic actions with clear roles and responsibilities, and with specific timescales

3.3.4 Business and Investment Development Strategy (2007 to 2013)

The Business and Investment Development Strategy is the core strategy relevant to the Ministry of Economy, Trade and Energy, covering a range of sectors but particularly the mining sector. The strategy covers 2007 to 2013 and its mission is:

“To guide the Government policy toward the steady growth and dynamic development of Albanian business entrepreneurship, productivity and competitiveness, investment promotion and orientation, and better use of financial and natural resources”.

The core principles and directions include:

- Improvement of the business climate by establishing regulatory and institutional mechanisms to streamline the business registration and licensing process.
- Implementing measures to reduce the informal economy and ensure fair market competition.
- Longer-term focus on education and training of human resources in order to facilitate business productivity and competitiveness.
- To improve co-ordination of policies for the promotion of SME, exports and foreign direct investments (FDI), and encourage partnerships between FDI and SMEs.
- The promotion of technology transfer and innovation, research and development, and partnership with universities and academic resources.

The strategy recognises that aligning the legal framework of the Albanian mining sector with EU legislation will be a major challenge in terms of affordability and capacity, in particular related to environmental standards and labour standards. In order to attract investment, the strategy recognises the need to reduce the financial liabilities on mining companies related achieving these EU standards.

In addition the strategy recognises the institutional, administrative and technical challenges in the mining sector, and other points on the mining sector in the Business and Investment Development Strategy (2007 to 2013) include:

- In relation to the demand for raw mineral materials, the strategy recognises the need to

programme geological research in the longer-term in order to establish a map of mineral areas.

- In addition, to help the mining sector in Albania to cope with the fluctuation in prices in the international market, the strategy proposes an increase in capacity of mineral processing in Albania.
- The strategy also proposes measures to increase the competition in the market within the mining sector.
- Also, the strategy recognises the problems with land ownership right issues need to be addressed.
- Capacity development of human resources will be needed, for example so that engineers, economists, managers can carry out technical and economic analysis, environmental impact assessments (EIAs), etc.
- As well as improvements in environmental management and rehabilitation activities, improving safety of workers is required according to the strategy.

The Business and Investment Development Strategy (2007-2013) has 5 strategy objectives related to mining.

- Objective 1 – to approximate legislation in response to EU integration and mining activity development.
- Objective 2 – to ensure institutional strengthening and human resources professional development in response to increasing demand by the restructures mining industry in the context of sustainable development.
- Objective 3 –to formulate and implement general policies for the promotion and rational use of natural resources and increasing mining reserves.
- Objective 4 – to implement effective control and supervision of mining activities at extraction and processing entities.
- Objective 5 – to continuously monitor post mining activities and ensure that mining activities respect the environment and the communities.

The Strategy provides cost estimates for its implementation, including costs in the mining sector from 2007 to 2013.

3.3.5 National Environment Action Plan

The National Environment Action Plan of 1994 was updated in 2001. The main objective of the Updated National Environmental Action Plan (UNEAP) (2001) is to provide the basis for ensuring an integrated form of environmental management that optimises the utilisation of natural resources taking into account environmental and economic sustainability. It aims at making environmental management more effective by improving the institutional capacities, mitigating and preventing environmental problems, strengthening the basis for the utilization of natural resources in conformity with the principle of sustainable development, promoting economic growth and reducing poverty.

The Updated National Environmental Action Plan (2001) included plans for the improvement of the legal framework including a plan on the amendment of the law on taxation and other laws that provide for financial instruments and the introduction of taxes for the environmental rehabilitation of mining areas. The Plan recognises the need for a clear definition of legal responsibilities regarding the clean-up of the existing contaminated sites related to the mining sector.

3.4 Overview of Main Legislation relevant to Mining Sector

As well as legislation specific to mining activities, there are several other areas of legislation relevant to development of the mining sector, including laws on foreign investment, laws related to private sector participation, laws on environmental protection, laws on health and safety, etc.

3.4.1 Legislation specific to Mining Activities

The Mining Law of Albania (1994) was amended in 2004 and 2007 through the following legislation:

- *Law on some Supplements and Amendments of the Mining Law of Albania (2004) (No. 9261)*. This Law included provisions for the set up of DSRMI as a semi-independent organisation within the Ministry of Economy, Trade and Energy (METE).
- *Law No. 9667 amending and supplementing Law No. 7796 of 1994 on the mineral resources of Albania (2006)*. This Law lays down various amendments and addenda to Law No. 7796 of 1994 on the mineral resources of Albania. Firstly, it defines "post-mineral monitoring" as a process for monitoring and controlling certain parameters and also for assessing the impact of mining activities after mines have been exploited. The amendments also define the status of AKBN as a specialized entity that provides technical assistance to the Ministry.

As well as the two laws in 2004 and 2006 to amend the Mining Law of Albania (2004), there are four associated regulations:

- Instruction No. 5, data 08.01.2007
"About the content of documentation for Exploitation Mineral Licence Renovation".
- Instruction No. 5/1, data 05.02.2007
"For content of documentation for Mineral Licence supply".
- Instruction No. 5/2, data 05.02.2007
"About monitoring of request investigation process, for Mining Licence"
- Instruction No. 5/3, data 05.02.2007
"About of documentation content for Mining Licence Transfer"

After re-drafting in early 2010 to take into account improvements needed to clarify certain aspects, such as new licensing arrangements, tendering, more detail on EITI, environmental protection, and more on the role of Local Authorities, as well as clarification on the rights of mining companies, the Draft New Mining Law was finally approved at the Albanian Parliament on 15 July 2010 as law No.10304.

3.4.2 Law on Foreign Investment

In Albania, the legal framework to encourage foreign investment is already in place through Law 7764 "on Foreign Investment" (1994). This law is designed to create a favourable investment climate for foreign investors in the country, aiming to offer guarantees to all foreigners (either physical persons or legal entities) willing to invest in Albania. Such provisions include that no prior government authorisation is needed and no sector is closed to foreign investment, and there is no limitation on the percentage share of foreign participation in companies (100% foreign ownership is possible).

3.4.3 Legislation related to restructuring the Mining Sector to Facilitate Privatisation

Different legal actions have been carried out from 1993 to focus on restructuring and privatisation of mining industry. The most relevant ones include:

- The approval of the Mining Law of Albania No.7491, on 17 February 1994 accompanied later on with the respective Acts and Regulations for licenses and activities of prospecting, exploration and exploitation.
- Resolution of the Ministers' Council on 21 March 1994 on the approval of implementing Discount Cash Flow procedures Method for Evaluation of the Mining assets for the purpose of privatisation.
- Law No. 8026, date 9 November 1995 "On the Privatisation of the Commercial Societies, which operate in the Mining Sector".

- Law No. 8306, date 14 March 1998 for Privatisation Strategy of particular strategic sectors (including mining sector).
- Council of Ministers Decision (VKM) No.421, date 09 July 1998 and the Order of Minister of Public Economy and Privatization No.9, dated 01 September 1998 “On the treatment of exploited mining deposits as well as of those mines which will be separated from the commercial societies and state enterprise.”
- The law on the concession of the mining enterprise to foreign and local entrepreneurs (1998 – 1999).
- Law on Collateral approved recently to help banks and mining small to medium enterprise (SME) finance project.
- Law No.8761, date 02 April 2001 for Approval of concession agreement of “Build, Operation and Transfer: BOT” form between Minister of Public Economy and Privatization and Turkish Company “BER-ONER” for some Copper and Chromium Industry Objects and for the giving of some incentives and guaranties to concessionaire of this agreement.
- Law No.8791, date 10 May 2001 for Approval of concession agreement of “BOT” form between Minister of Public Economy and Privatization and Italian Company “DARFO” for Bulqiza Chromium mine, Bulqiza Chromium Dressing Plant, Klos Chromium Selection Plant and Burreli Ferrochromium Metallurgical Plant and for the giving of some incentives and guaranties’ to concessionaire of this agreement.

CHAPTER 4 STRATEGIES FOR DEVELOPMENT OF SPECIFIC MINERALS

In Albania various surveys of mineral resources were conducted mainly during 1970s and 1980s following the mineral resource evaluation standard of the former Soviet Union and the Mineral Resources Database of AGS has been constructed based on this standard. But this standard of the Soviet Union is quite different from the standard currently used in western country of market economy where mineral resources data must be presented to the public, and it is difficult to attract attention of foreign investors by the mineral resources information using this standard. For that reason, before discussion of strategy of specific minerals, evaluation method of mineral resources of Albania was studied for finding the best way for future evaluation of mineral resources.

4.1 Mineral Resources Database and Economic Evaluation of Mineral Resources

For foreign investors who want to know information of mineral resources of Albania, the information sources they can access are mineral resources database of AGS (Albanian Geological Survey) and exploration report of ore occurrences mainly prepared during 1970s and 1980s by AGS. In these documents mineral resources were described using the classification system of Albania which is different from the world wide classifications, particularly those of western countries. This section describes the Albanian classification and various international classifications that are used, and proposal for adaption of the Albanian classification to be consulted with international classifications.

4.1.1 Classification of Mineral Resources in Albania

Mineral resources are evaluated based on key factors such as probability of existence, volume, ore grade and feasibility, and they are classified using these parameters so that potential investors can understand the potential of mineral resources. In Albania, classification of mineral resources has been conducted following the method of the Former Soviet Union, and the mineral resources database and geological report have been prepared based on this classification. They have been classified into A, B, C₁, C₂, P₁, P₂ based mainly on intensity of geological work and therefore probability of existence of ore deposits. Based on ITNPM (1999) descriptions of each category are given below.

Category A: These mineral resources are discovered and studied in detail to ensure full clarification of the conditions of extension, shape and construction of body of mineral resources, full nature and type of mineral resources (and industrial materials), relationship of boundaries and outlines of extent, grade classification of ore body and outline of portions without mineralization within the ore body and definition of natural factors (hydro geologic and geologic - engineering) that define the conditions of development of mine opening, preparatory, exploitation works of deposit. The outline of reserves of mineral resources is determined based on the results of detailed survey works and those of mining works mainly by gallery and drilling.

Category B: These mineral resources are discovered and studied in detail to ensure full clarification of the conditions of extension, shape and construction of body of mineral resources, full natures and type of mineral resources (and industrial materials) and their distribution manner as well, without specifying classification of the boundaries of each ore type. Grade classification and occurrences of the parts without mineralization are not as clear as Category A. Outlines of these mineral resources are defined according to the data of survey works in a limited area with extrapolation of stable thickness and quality. These mineral resources become the basis for developing mining and technological projects and object for investments for operation of mine and other facilities of mining character that are related to exploitation and processing of discovered minerals. Outline of reserves of the mineral resources is determined based on the results of detailed survey works and those of mining works mainly by drilling with combination of gallery work.

Category C₁: Mineral resources are discovered and studied in detail, to provide a clarification in

general of conditions of location, shape and formation of useful ore body, type of nature, industrial types, quality, technological characteristics and natural factors that determine the conditions of developing mining -exploitation works. Contour of reserves of minerals resources is determined by survey and extrapolative works according to the data of geological drilling and geophysical works. Although these mineral resources are necessary to be promoted to categories A and B mineral resources by additional work, they can be a basis for designing and planning the investments for the development of mine.

Category C₂: Mineral resources are estimated in advance by the extrapolation of the existing data. The natures of extension, form and distribution of ore bodies are defined on the basis of geological and geophysical works that are conducted for the finding of mineral resources in a particular point or by survey data. Contour of deposits of useful minerals has been defined by boundaries of geological structures and at bodies of mineralized rocks. These reserves are the basis for planning the exploration and exploitation works and for the prospective studies and opening mine works, as well, and for the practice of Albania a base to plan and design investments for construction of mines.

Category P₁: This corresponds to the outer neighboring area of C₂ Category area. The outer margin of the area is estimated by the extension of known ore body of similar type.

Category P₂: This category corresponds to the area of high potential of mineral resources defined by geophysical and geochemical data in the area with occurrence of known ore body

Category P₃: This corresponds to all mineral resources not classified into all of the above categories.

Mineral resources classification of Albania is based on geological confidence and mineral resources are classified based on intensity of exploration work defined by intensity of galley work and grid size of drilling work. Table 4.1.1 shows relations between categories of classification and intensity of exploration work.

Table 4.1.1 Classification of mineral resources and drilling grid

Category	Probability	Galley survey and general size of drilling grid
A	90%	Mainly gallery observation with some drilling work.
B	80%	Drilling and gallery observation.
C ₁	70%	Drilling grid: 50 x 50m
C ₂	35%	Drilling grid: 100 x 50m
P ₁	20%	Drilling grid: 200 x 100m
P ₂	15%	Drilling grid: 400 x 200m

The size of drilling grid system is determined for accurate estimation of mineral resources and they can be changed depending on type and nature of mineral resources. For example, grid size of C₁ category is 50m x 50m in general, but depending on situation the following grid sizes are used.

- For ore body with irregular shape: 40x40 m, 60x30m
- For small ore body of chromites: 30x15m
- Chromites ore body in general: 40-20m: 40-40m, 60-30m
- Complicated Cu mineralization: 15-30m
- Ni ore body is simpler than others: 60-80m to 40-60m, 100-80m, and 100-100 m

4.1.2 AGS Mineral Resource Database

In the AGS mineral resources database (Table 4.1.2), mineral resources are classified into Industrial Reserves, Geological Reserves, Excavated Reserves and Present State of Reserves. Mineral resources

of the AGS mineral resource database have been classified using categories of mineral resources classification of Albania. They are defined as below.

- Industrial Reserves-----A, B, C₁ categories
- Geological Reserves-----C₂ and other categories
- Total = Industrial Reserves + Geological Reserves
- Excavated Reserves-----Exploited Resource
- Present Situation of Reserves=Total– Excavated Reserves.

Industrial Reserve is used to differentiate ore reserves from Geological Reserve. The separation of these reserves is normally done using categories given above, however, there are some cases when ore grade of specific mineralization is used for separating these two reserves. Examples of these are given below.

Chromite deposit

Higher than 20Cr₂O₃%: Industrial Reserves

Lower than 20Cr₂O₃%: Geological Reserve

Nickel deposit

Higher than 0.7Ni%: Industrial Reserves

Lower than 0.7Ni%: Geological Reserve

Copper deposit

Higher than 0.7%Cu: Industrial Reserve

Lower than 0.7%Cu: Geological Reserve

For evaluation of mineral resource, cut off grade must be considered, but cut off grade changes depending on metal price. In a case of the Kukes mine, cut off was 10Cr₂O₃% but it can still be feasible at this grade if new technology is implemented or a mine is operated by open pit mining at favorable Cr price.

Table 4.1.2 AGS mineral resources database

No	Group	Type of Mineral	Name of Deposit	Industrial Reserves (1,000t)	Geological Reserves (1,000t)	Total (1,000t)	Classification	Excavated Reserves	Present State of Reserves
607	1	Chromite	(Kerul 1)	0,515	0,238	0,753	I		0,753
608	1	Chromite	(Kerul 2)				III		
494	1	Chromite	Afer Liqenjeve			1,2	I		1,2
495	1	Chromite	Almarine	112		112	II	110	2
496	1	Chromite	Balgaj			2	I		2,0
730	1	Chromite	Bataçet	51,0	20,8	71,8	II		71,8
577	1	Chromite	Bater	3631	1091	4722	III		4722
497	1	Chromite	Bulgize	12242	6046	18292	III	13900	3102,8
731	1	Chromite	Druni i Boshtive	1,558		3,868	I		3,868
579	1	Chromite	Fusha e Kalit	6,1	7,03	13,13	I		13,13
787	1	Chromite	Fushe Kishe	9,5	18	27,5	I		27,5
580	1	Chromite	Fushe Lope	116,5	178,3	294,8	II		294,8
564	1	Chromite	Fushe Qethi	6,39	4,64	11,03	I		11,03
581	1	Chromite	Guri i Mekes	11,67	20,19	32,	I	0,7	31,3
732	1	Chromite	Kaçni	1,250		1,250	I		1,250
582	1	Chromite	Kaptina	26,85	26,62	53,47	II		53,47
733	1	Chromite	Kepet e Dik Nelit	12,58	8,250	20,830	I		20,830
498	1	Chromite	Kodra e Leres	21	19	40	I	2,5	37,5
583	1	Chromite	Kopeshti i Kalit	22,5	6,81	57	II		29,3
584	1	Chromite	Kraste	1772,1	824,1	2596,2	III	695,5	1900,7
585	1	Chromite	Letaj	28,02	53,06	81,07	II		81,07
499	1	Chromite	Liqeni i bardhe	1,48	0,74	2,22	I		2,22
788	1	Chromite	Liqeni i bardhe	0,5		0,5	I		0,5
734	1	Chromite	Liqeni i Dhive	21,88	9,84	31,72	I	2,4	29,32

(Source: AGS Mineral Resources Database)

4.1.3 Current Classification Systems in the World

In a market economy, banks, mining companies, the third shareholders involved in mining industry provide investment and support for development of mining industry in conducting exploration surveys, exploitation, processing of mineral and smelting. When they consider investment to mining activities, their main concern is risks from uncertainties. They try to make clear the visions of mineral resources based on certain classifications including parameters such as tonnage, ore grade, probability as well as factors such as geological, technological and economical aspects. For promotion of investment, it is necessary to provide an accurate assessment of mineral resources and that will reduce the risks and consequently increases investor's interests.

For Albania, foreign junior companies are considered to play important role, particularly in the exploration stage. Since many are listed companies on the stock market, it is necessary for them to prepare report of describing mineral resources under strict rules.

Among the mineral resource classification schemes of the world, the followings are generally widely accepted:

1. USBM (United States Bureau of Mine)-USGS (United State Geological Survey) classification
2. United Nations Framework Classification for Reserves/ Resources
3. Australian Joint Ore Reserves Committee Code (JORC Code)
4. Canadian CIM (Canadian Institute of Mining, Metallurgy and petroleum) Classification-National Instrument 43-101 (NI43-101)

Among these, 1 and 2 were implemented aiming at developing common classifications and nomenclatures for mineral resources, since geologists, mining engineers and others operating in the mining sector have used various terms to describe and classify mineral resources. 3 and 4 were implemented for the ultimate purpose of preparing report to be submitted to the stock exchange office and they are controlled by strict regulations to meet the requirements and standards.

Descriptions of some of worldwide accepted classification and nomenclature of mineral resources and correlation to the Albanian classifications are given below.

4.1.4 Use of the Past Albanian Data and Evaluation Method for Future

If conversion of classification of Albanian mineral resources was done into international classification, such as UNFC classification or JORC code, all the categories of Albanian classification decrease validity and they belong to either Measured or Indicated or Inferred or Reconnaissance Mineral Resources (Table 4.1.3). Since mineral resources information of Albania lack information of feasibility and economic viability that are normally included in the feasibility study of the countries of market economy, Albanian mineral resources can not be classified as using the term of Reserves. Therefore, the term Resource must be used instead of Reserves in the AGS database as shown in Table 4.1.4.

Based on the present state of mineral resource information of Albania, even the mineral resources with detailed exploration work and high grade can not be classified as reserves and remain under the category of Resources. Only after completion of feasibility study and economic variability consideration, would it be possible for them to be included as Reserves.

Table 4.1.3 Comparison of classifications

UNFC classification		JORC code	Albania
Proved Mineral Reserves	111	Proved Ore Reserves	
Probable Mineral Reserves	121	Probable Ore Reserves	
	122		
Feasibility Mineral Resources	211		
Prefeasibility Mineral Resources	221		
	222		
Measured Mineral Resources	331	Measured Mineral Resources	A+B
Indicated Mineral Resources	332	Indicated Mineral Resources	C ₁
Inferred Mineral Resources	333	Inferred Mineral Resources	C ₂ +P ₁
Reconnaissance Mineral Resource	334		P ₁ ,P ₂ ,P ₃

Table 4.1.4 International classification and AGS database

AGS database	Albanian classification	UNFC and JORC (lower category is applied)
Industrial Reserves	A, B, C ₁	Indicated Mineral Resources
Geological Reserves	C ₂	Inferred Mineral Resource
Total Reserves	A,B,C ₁ +C ₂	Inferred Mineral Resources
Excavated Reserves	-	Excavated Resources
Present Situation of Reserves	A,B,C ₁ ,C ₂ -Excavated Reserves	Present Situation of Resources

According to the UNFC classification, definition of feasibility study is give as below.

A Feasibility Study assesses in detail the technical soundness and economic viability of a mining project, and serves as the basis for the investment decision and as a bankable document for project financing. The study constitutes an audit of all geological, engineering, environmental, legal and economic information accumulated on the project. Generally, a separate environmental impact study is required.

In the case of existing chromite mine in Albania, the following works are considered to be necessary to prepare a feasibility study acceptable to UNFC classification (Alliu, 2009).

- 1 ton of ore samples from each of mine for the preliminary testing of the process of ore processing to obtain chromite concentrate for smelting to produce ferrochrome;
- redefinition of the mineral blocks and recalculation of the ore reserves according to the UNFC standard;
- open pit and underground mine design optimization for new mine, avoiding the negative effects of the old unsafe mine workings;
- the flow sheet for the concentration plant to upgrade the chromite mined to a 40 - 50 % Cr₂O₃ concentrate ready for use in ferrochrome production;
- geotechnical study for the estimation of the geological – engineering conditions in the ore deposits to avoid the collapses in the new mines;
- environmental study following the EU standard;

- economic study
- compilation of a Feasibility Report

For conducting a feasibility study, it is, therefore, necessary to have a large budget.

Since classification of mineral resources of Albania have been done following the method of the Former Soviet Union, there would be some confusion for foreign investors to see the Albanian classification of mineral resources. However, mineral resources data, such as Mineral Resources Data Base of AGS and geological reports of mineral resources mainly done during 1970 and 1980, are well organized and rigorous, based on the systematic exploration work such as grid drilling. It is considered to be reliable as basic data and it can be used as reference for planning exploration and mining projects. It would be complicated and unrealistic to transfer the mineral resource data of the past based on the different criteria of international standard, because the mineral resources database is connected to many factors such as exploration policy, survey method and assaying. Even if this was transferred based on international standard in certain way, it is difficult for foreign investors to fully accept the results and they are considered as only reference data. Although, foreign investors may not be familiar with Albanian classification of mineral resources, if detailed explanation of classification and ore reserves calculation were attached to the Mineral Resources Database, foreign investors would effectively make use of the past data of Albania. Considering promotion of foreign investment to Albania, it is necessary for mining sector of Albania to become familiar with the international standard of mineral resource classification. It is proposed that METE and AKBN should make regulation of using world standard of classification and ore reserves calculation for the documents to be submitted to METE and AKBN. The recommended system of classification is UNFC classification or JORC code. Both of the classifications are essentially similar and it is necessary to conduct feasibility studies (consideration of Modifying Factor similar to feasibility study in case of JORC code) for mineral resources to be classified as mineral reserves with economic viability.

4.2 Chromite

4.2.1 Chromite Mine of Albania

1) Geological situation

Two types of chromite deposits found in different geological environment are known in the world. The one is stratiform type with widespread lateral extension, being associated with layered intrusion and the other is podiform type chromite found in harzburgite in the ultramafic rocks of ophiolite sequences (Arai, 1997, Gervilla and Leblanc, 1990 and others). The chromite deposits of Albania are podiform type occurring mainly in harzburgite of the ophiolite sequence. The podiform type chromite deposit generally shows a small scale irregular distribution and chromite of it generally has high Cr and Al.

Ultramafic rocks of the ophiolite sequence occur in NNW-SSE trending two zones of the Eastern Ophiolite Belt (EOB) and Western Ophiolite Belt (WOB) in Albania (Figure 4.2.1). The ultramafic rocks of the Eastern Ophiolite Belt mainly consist of harzburgite while those of the Western Ophiolite Belt mainly consists of lherzolite (Meco and Aliaj, 2000). Chromite deposits of higher Cr_2O_3 grade occur in the Eastern Ophiolite Belt, while podiform chromite bodies with lower Cr_2O_3 grade are only rarely found in the Western Ophiolite Belt.

The chromite deposits of the Eastern Ophiolite Belt occur in the complicated shape such as tabular sub-concordant, concordant, pencil-like and other podiform morphologies cut by many faults through tectonic movement and deformation. Similar to chromite deposits of the ophiolite types of elsewhere in the world, the chromite deposits are mainly found in the locations of 400 to 700m below the petrologic Moho, (boundary between mantle sequence consisting of tectonic harzburgite and crust sequence consisting of layered gabbro). In the mantle sequence, chromite deposits are most commonly found in the units of harzburgite-dunite, dunite-harzburgite and massive dunite units.

Chromite deposits of Albania mainly occur in three main bodies of ultramafic rock, Tropoja, Kukes, Bulqiza, Shebeniku-Pogradec. As shown on the Tables 4.2.1, more than 25.6 million tons of chromite ore has been produced in Albania. The chromite ore produced from the Bulqiza massif account for 82% and the production of chromite ore from each of other ultramafic massif is less than 10%. For the mineral resources of chromite ore, the Bulqiza massif account for 56% of the total resources and each of Tropoja and Kukes massif has nearly 20 % of the total.

In the ultramafic massifs of Albania, approximately 1,100 ore deposits and mineral showings of chromite are known. By the recent report (AGS 2008), chromite resources of 37 million tons in total were reported from which 7 million tons are of high grade with over 46% Cr_2O_3 and 3.1 of Cr/Fe ratio. Among these chromite deposits, many of them are small with ore resources of about 100,000 tons and approximately 30 ore deposits fall in a range of 500,000 to 1,000,000 tons, and several of them are over 1,000,000 tons.

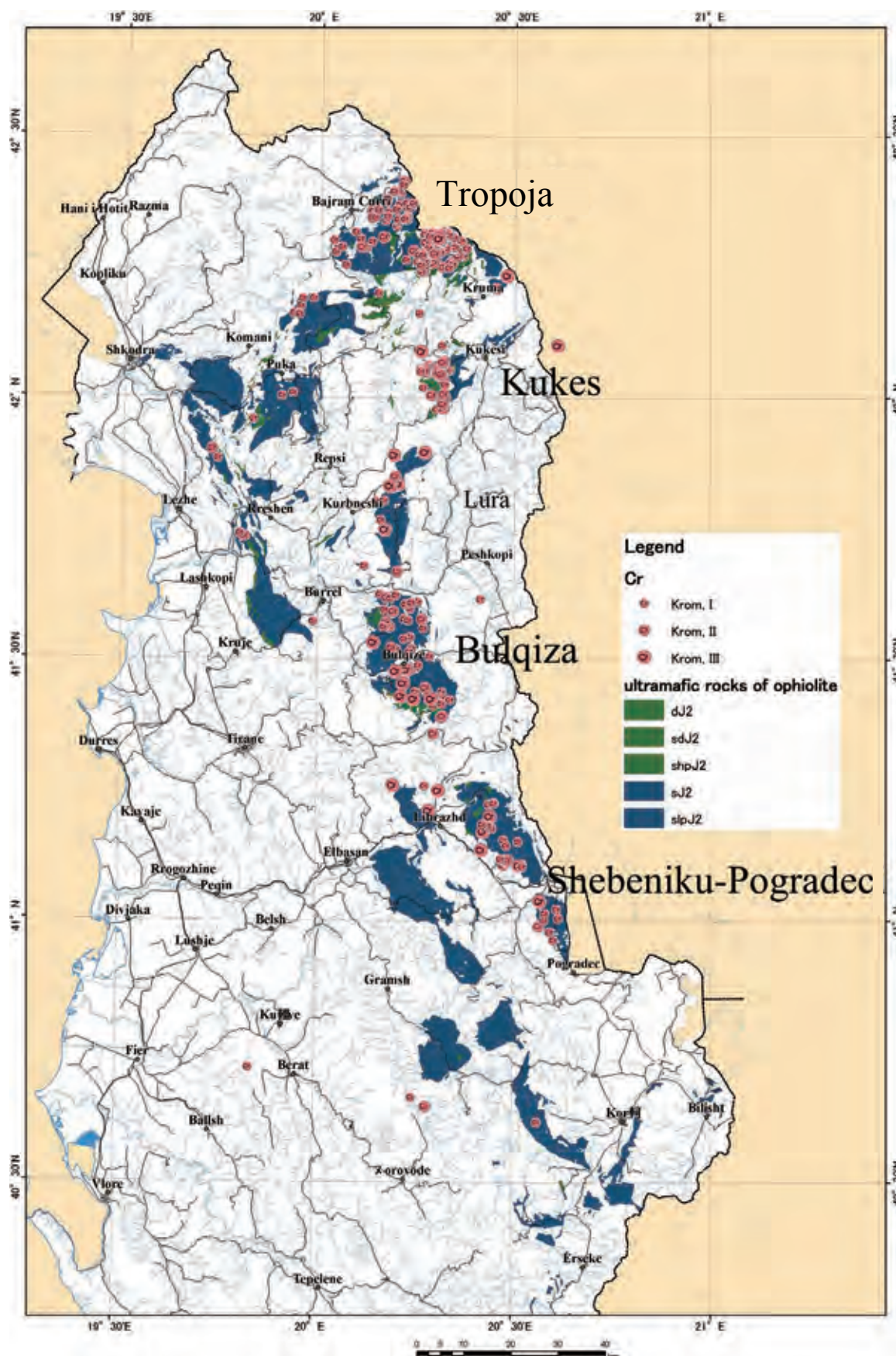


Figure 4.2.1 Distribution of chromite deposits and ultramafic massif

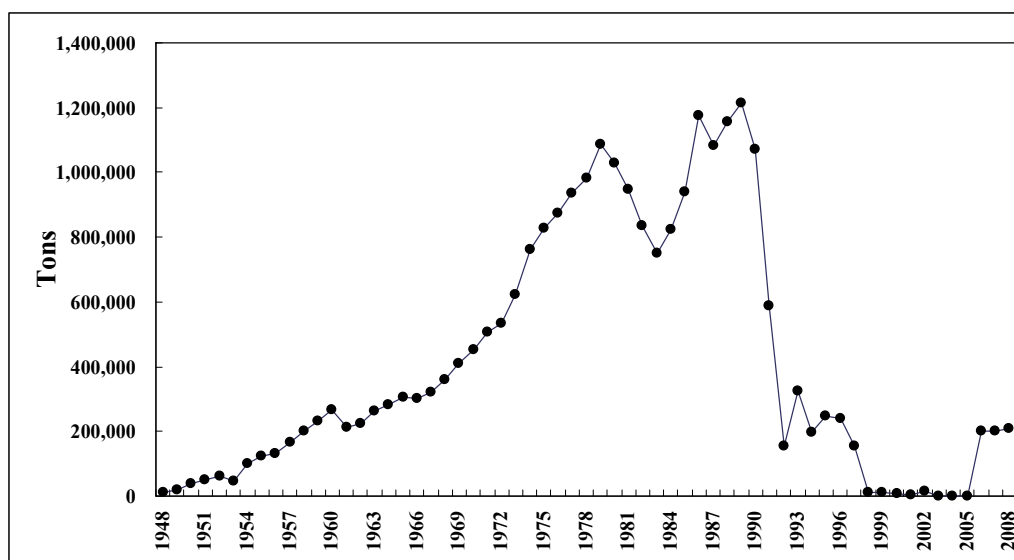
Table 4.2.1 Chromite resources and ultramafic rock

Name of ultramafic massif	Production of Cr ore		Mineral Resources (B+C ₁ +C ₂)		Main chromite deposits
	(1,000t)	%	(1,000t)	%	
Tropoja	1,500	6	6,097	18	Vlahna, Zogaj
Kukes	2,500	10	6,828	21	Kalimash, Perroi Batres
Lura	15	0	351	1	
Bulqiza	21,000	82	18,292	56	Bulqiza, Batra, Buall Pass, Thekna, Shkalla, Ternova, Krast-Lugi I Thelle, Selishata-Dervish Lake, Ceruja
Shebeniku-Pogradec	600	2	1,235	4	Katjel, Pojska
Total	25,615	100	32,803	100	

(modified from ITNPM and AGS, 2005)

4.2.2 History of Chromite Production

During the period of occupation by Italy in 1940s, production of chromite was conducted in a few small mines and about 2,000 tons/year of chromite ore was produced. Then, in 1948, production of chromite was started in Bulqiza mine. During the period of planned economy in 1970s and 1980s, mineral exploration programs systematically conducted nation-wide led to findings of many ore deposits, subsequent development of mines and production of ore (Figure 4.2.2). The mining industry of chromite was operated by state company called ALB CHROME and production of chromite ore exceeded more than 1 million tons/year from late 1970s to 1989. During that period Albania was No.3 chromite producing country in the world after South Africa and the Soviet Union (Kazakhstan). At the end of communist regime in 1991, the production of chromite drastically dropped and a struggle with the privatization of mining industry continued. After 2000, introduction of foreign investment to the chromite mining started and annual production of chromite reached approximately 200,000 tons in 2006 and the production is gradually increasing.



(source: AKBN data)

Figure 4.2.2 Annual production of chromite ore

4.2.3 Present Situation of Chromite Mining

1) Present situation of mining

A distribution of mining concession of chromite classified by amount of production in 2009 is shown in Figure 4.2.3 and a histogram of Figure 4.2.4 shows classification of mine concession by production. The areas of production of chromite in Albania are concentrated in three areas, Tropoja-Kukes, Bulqiza, Shebeniku-Pogradec. At present, no significant mining activities are taking place in Kukes massif, however, Kalimash-Vlahna mines were awarded to a contractor, and production of chromite is expected in future. Among 163 mining concessions registered as of March 2010, 95% of them are conducting small scale operation with annual production of chromite ore less than 5,000 tons and only 4 mining concession have annual production of more than 10,000t. For number of employees, more than 90% of the mining concessions are small scale with less than 20 employees (Figure 4.2.5). Further, among these, 52 mining concessions claim no production in 2009 and most of concessions without production in 2009 claim no employee or less than 5 employees. Chromite mines of Albania are operated by a few large companies and many small companies.

Chromite ore of more than 10,000tons was produced from 1 concession in Tropoja-Kukes area and 3 concessions in Bulqiza area and most of the rest of concessions are small scale with annual production of less than 5,000 tons.

2) Main chromite mines

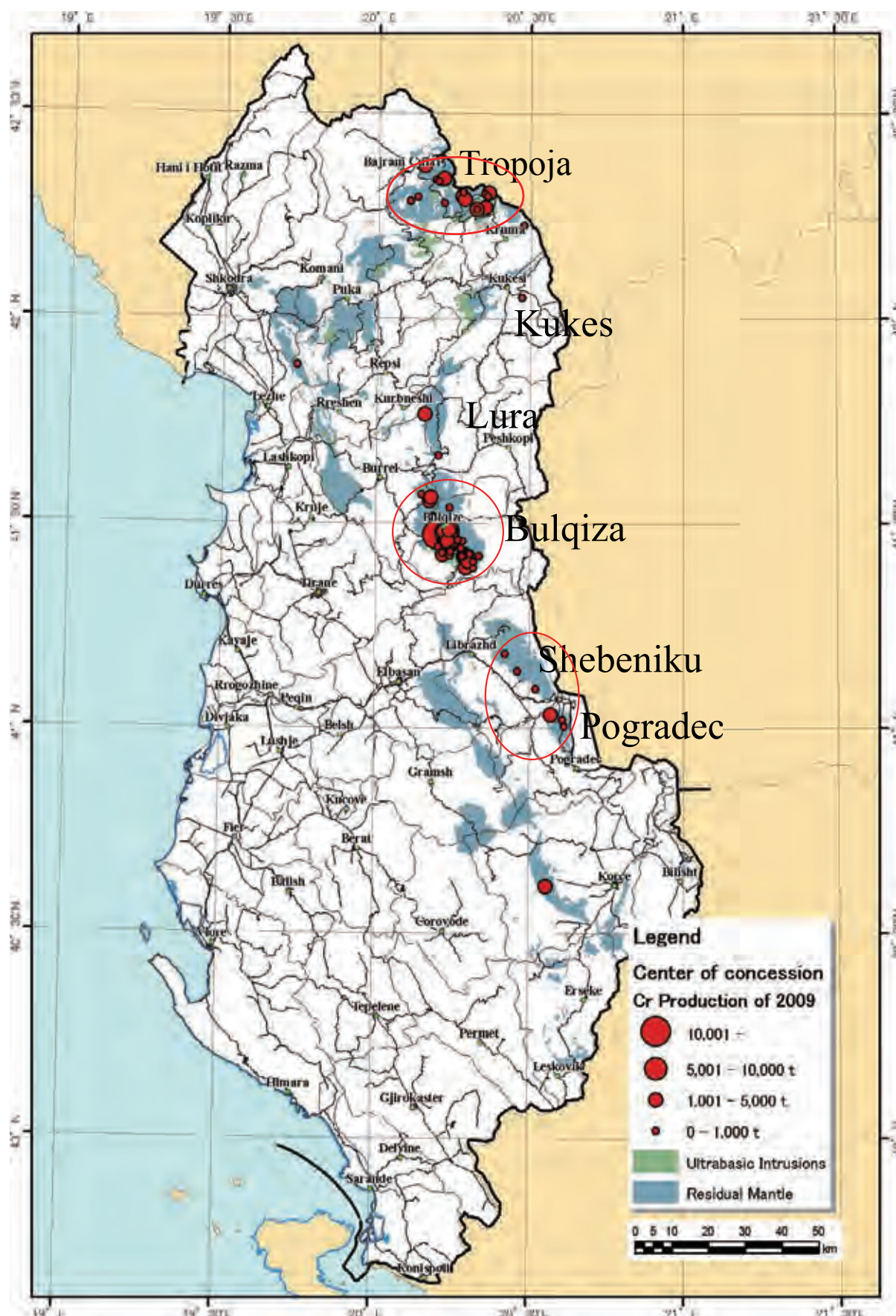
The main chromite mines of Albania are Bulqiza mine and Batra mine in Bulqiza massif and Kalinash mine in Tropoja-Kukes massif.

(1) Bulqiza mine

In the Bulqiza mine ARC are currently working at the level 16, approximately 800m below the main gallery. Among the mined ore, 75% of it is high grade. For the recent 5 years, production has been 7,000 tons/month and 80,000 tons/year. The Albanian Chrome has started to sink a new shaft, Shaft No.7. The new shaft will be made from Level 16 to reach Level 24. After the completion of the work, production of chromite ore will be increased from 80,000 tons/year to 230,000 - 250,000 tons/year. The total cost of the project is estimated to be 30 to 35 million Euros. The project was actually started on September 1, 2009 and Albanian and Russian will work for this shaft for 2.5 to 3 years to complete the shaft.

(2) Kalimash mine

An international tender for mining concession was held including both of Kalimash mine of Kukes massif and Vlahna mine of Tropoja massif and the mining concession was given to a joint venture of Kurum Energy, Resources and Metallurgy (Turkey) and Sichuan Jiannanchun Group (China) in April 2010. According to the information of AKBN, mineral resource of a total of four mines of Kalimash is 5.1 million tons (18-23%Cr₂O₃) and higher grade of ore is expected in the depth. Although production of Vlahna mine during a period of 1986 to 1996 was 45,000 tons, mineral resource of 2.56 million tons (29.2Cr₂O₃%) is estimated. According to the contract between the government and the Joint Venture, 210,000 tons/year of chromite ore must be produced and two concentration plants in Kalimash and Golaj must be completed within 2 years. Further, smelting plan must be completed to produce 60,000 tons/year of ferrochrome within three years.



(source: METE)

Figure 4.2.3 Distribution of chromite concession and annual production of chromite ore

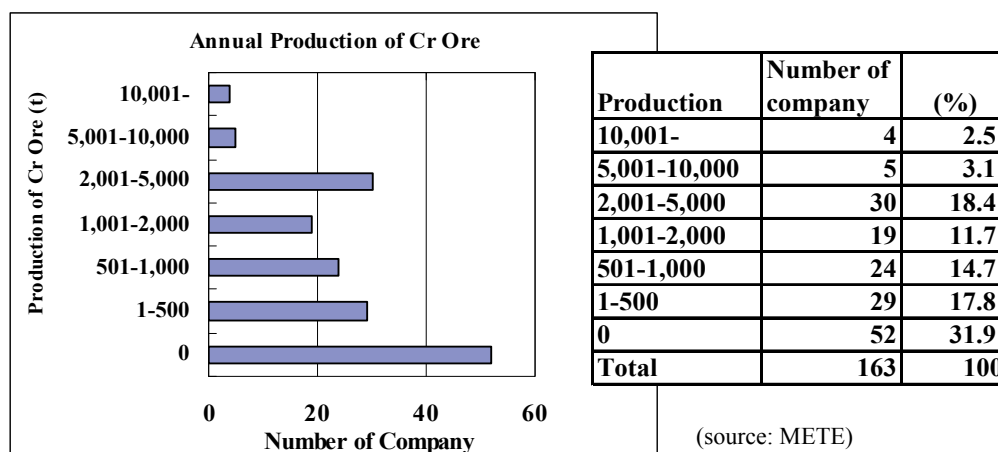


Figure 4.2.4 Classification of chromite concession by annual production of 2009

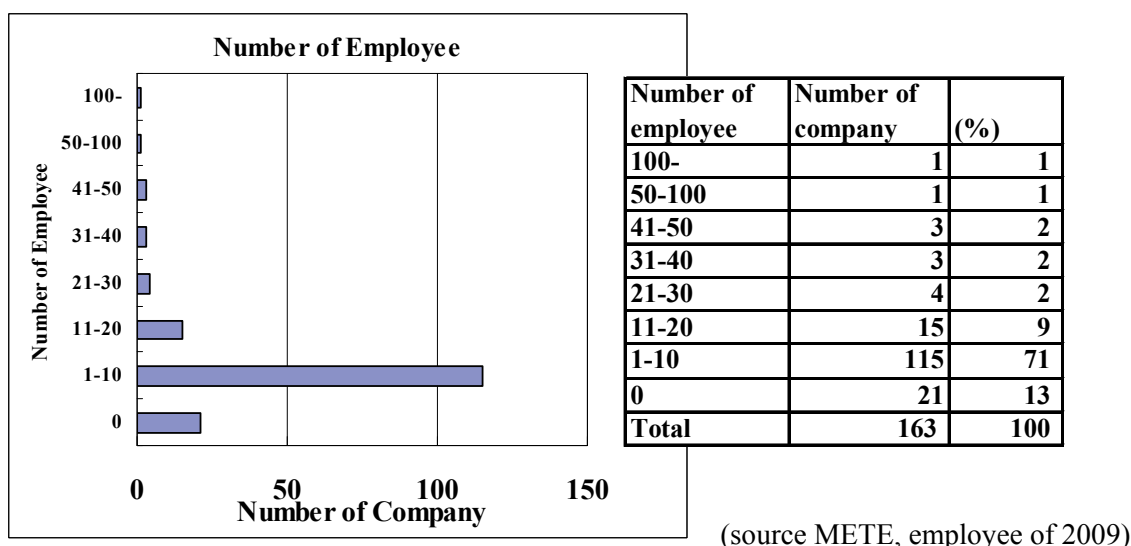


Figure 4.2.5 Classification of chromite mine by number of employee

3) Situation of exploration

(1) Geological situation

The podiform chromite deposits of ophiolite sequence are mostly found in the ultramafic rocks of the mantle near transitional zone between crust and mantle and rarely found deep in the mantle sequence. The podiform chromite characteristically occurs surrounded by dunite in the harzburgite suggesting a close genetic relation between dunite and chromite ore. The dunite rarely occurs discordantly to surrounding harzburgite, but dunite and included chromite ore deposit mostly occur concordantly to surrounding harzburgite. It is suggested from these aspects that dunite with chromite ore was originally discordant to the surrounding harzburgite but then it has become concordant during the deformation by the tectonic movement.

(2) Exploration activities

The main exploration activities are conducted by Canadian and Australian junior companies, respectively in Bulqiza massif and Tropoja massif. Other than these, a small scale exploration is conducted in operating mines and at the vicinity of known ore deposits by Albanian companies.

a. Bulqiza massif

Among the chromite exploration projects in Albania a junior company, Empire Mining (Canada), is currently most vigorously working in the Bulqiza area. The Empire Mining obtained prospecting license in the area of 134km² covering Bulqiza ultramafic massif including Bulqiza mine and Batra mine areas in May 2008 (Empire Mining and EC Terra). Further, within the prospecting licensed area, the Empire Mining obtained four areas of exploration license in January 2009, one of which is covering 35km² including Bulqiza and Batra mines areas. Based on their own geological ideas of considering a importance of thrust tectonics for formation of geological structure of the Bulqiza area (Hoxha, 2007), they made drilling plan to start drilling. The drilling was started in April, 2010.

b. Tropoja-Kukes massif

Jab Resources (Australia) has three exploration license areas in Tropoja-Kukes massif. They are Kalimash (chromite), over the area surrounding Kalimash mine, Bregu i Bjbesh (chromite and Platinum) and Zogai (chromite) .

Kalimash Exploration license area is located surrounding Kalimash mine. In the area Jab Resources has conducted surface geological survey, compilation of existing information, trench survey and reverse circulation drilling of 57 holes (Total 3,834m) (Mathison Geoscience Pty. LTD. 2010). The results of survey suggested a total of inferred mineral resource of 6.72 million tons at 4.36Cr₂O₃% in Target 1 and Target 2, both of which respectively located in the west and in the east of the Kalimash mine. Mineral processing test showed that, using samples of head grade at 10Cr₂O₃%, it was possible to produce concentrates of 40Cr₂O₃% at recovery of 77%.

Bregu i Bjbesh area is located close to Kosovo border in Tropoja massif. In the area, PGE (Platinum Group Elements) mineralization in addition to chromite mineralization has been known by the survey of the state owned exploration company in the past. Boshnjaku and Kulici (2002), from the Geological Research Institute (GRI) of Albania, describe PGE mineralized bodies of chromite orthopyroxenite with strike lengths up to 200m, down dip extents of 20 to 40m and thicknesses from 1 to 10m with PGE grade between 1 and 7ppm with sporadic assays up to 27ppm Pt. Jab Resources conducted surface geological survey, sampling of mineralized zone, compiling of existing data, preliminary mineralogical analysis of PGE bearing chromite mineralization.

Zogai area is located in the area immediate south of Bregu i Bjbesh. In the area there are Zogai mine (mineral resources: 1.238 million tons, operated until 2000) and other relatively large mineral deposits with mineral resources of around 100,000 tons. Since existing mines are specifically excluded in exploration license of Albania, the targets for JAB Resources exploration program are to delineate a larger deposit around a poorly explored small deposit or to locate a shallowly buried concealed deposit. The exploration program is still at preliminary stage and the works so far conducted are geological reconnaissance survey and sampling of old workings and assaying.

4.2.4 Material Flow

As the production of chromite ore drastically increased in 1970s and 1980s, a integrated system of chromite mining industry, continuous process of mining-dressing-smelting, in Albania was considered and concentration plants were established in Bulqiza, Batra, Kalimash and smelting plants were established in Burrel and Elbasan .

The Bulqiza concentration plant with crude ore treating capacity of 240,000 tons/year is operational now and production capacity of chromite concentrates (48-50%Cr₂O₃) is 120,000 tons/year. Concentration plant of Kalimash with chromite concentrates producing capacity of 80,000 tons/year is now dormant. Other than these, there are pre-dressing treatment plants in other places in addition to Bulqiza and Batra and gravitation concentration of granule ore is conducted.

There are two smelting plants, one in Elbasan and the other in Burrel, in Albania. The Burrel smelting plant was operated from 1979 to 2000 and 460,000 tons of ferrochrome was produced from 1.4 million tons of crude ore and concentrates. The Burrel smelting plant is, now, owned by Albanian Chrome under the contract of ROT (Rehabilitation-Operation-Transfer) and it is left untouched without any rehabilitation work.

The production of ferrochrome using one furnace in Elbasan smelting plant was started in 1989 by the state company ALB CHROME. By operation of ALB CHROME during a period of 1990 to 2000, 450,000 tons of chromite ore was processed and 143,000 tons of ferrochrome was produced. Then, the Elbasan Plant was transferred to Italian company DARFO. The plant is currently operated by Albanian Chrome and it has not reached to its full operation as of June 2010. The Elbasan smelting plant had three electric furnaces for high carbon ferrochrome and now two of them have been changed to furnace for low carbon ferrochrome by Albanian Chrome. The Albanian Chrome is trying to shift production from only high carbon ferrochrome to low carbon ferrochrome in addition to high carbon ferrochrome. The target of the Albania Chrome is to produce low carbon ferrochrome at an amount of 5% of the world market (600,000 tons/year).

In the past, concentration plants were operational in Kalimash, Bulqiza and Batra, and low grade chromite ore of Bulqiza and Batra mines were processed to produce concentrates and then ferrochrome was produced in smelting plants of Elbasan and Burrel. But now currently operating concentration plants are Bulqiza and Batra, and Elbasan is the only operational smelting plant (Figure 4.2.6). The low grade chromite ore of Tropoja-Kukes area is sent to concentration plant of Kosovo.

Although it is difficult to know the exact amount of export, export amounts of chromite ore, concentrates and ferrochrome from Durres port are shown based on the information of AKBN in Table 4.2.2. Chromite ore and concentrates are mainly exported to China and exported amount in 2009 are, respectively, 240,000 tons and 13,000 tons. All ferrochrome produced in the Elbasan smelting plant are considered to be exported from Durres port and 5,288 tons of high carbon ferrochrome was exported in addition to 520 tons of low carbon ferrochrome in 2009.

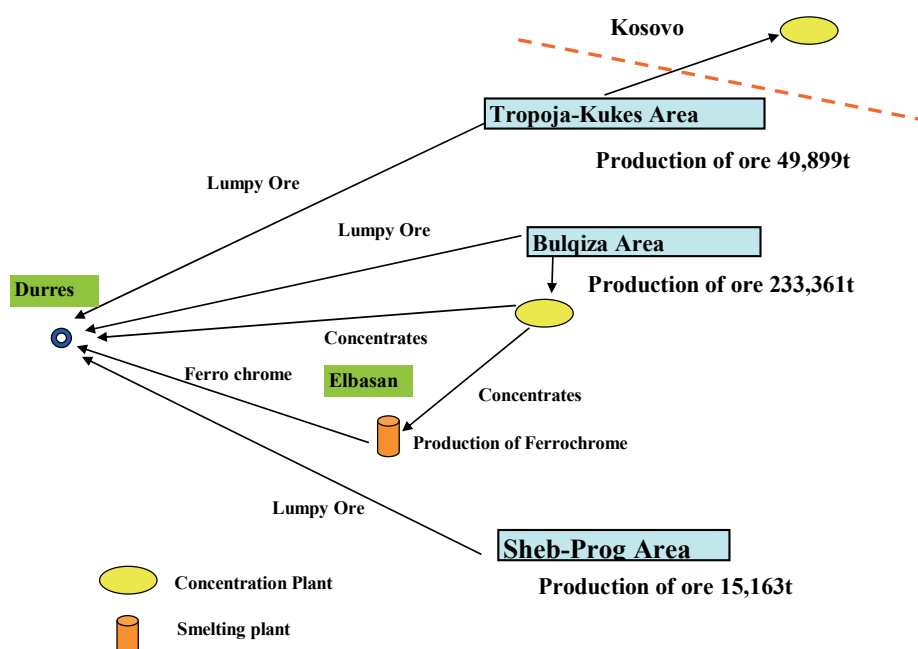


Figure 4.2.6 Material flow of present

Table 4.2.2 Export of chromite ore, concentrates and ferrochrome from Durres port

	2006	2007	2008	2009
Chrome ore (t)	184,100	343,019	194,207	243,024
Chrome concentrate (t)	19,761	17,252	9,650	13,067
High Carbon ferrochrome (t)	17,074	327	8,392	5,288
Low Carbon ferrochrome (t)	-	-	-	520

(source: AKBN)

4.2.5 Problems Existing in Chromite Mining

Chromite mining had been playing most important role in the mining industry of Albania and economically contributed much to the government finance in the past. Although chromite mining was declined during the period from early 1990s to early 2000s, it now shows sign of gradual regaining by introduction of foreign investment. The scale of chromite mine in Albania is generally small but optimal use of these small scale mines abundantly distributed in Albania can greatly contribute to economy of Albania. The problems that chromite mining is currently facing are given below.

1) Situation of mining operation

Chromite mines of Albania are operated by a few of relatively large scale companies and many small companies. Albanian Chrome, operating in Bulqiz mine, is the only company with number of employees more than 100 and most of the rest of companies engaged in chromite mining are mostly small with number of employee around 10. For the annual production of chromite ore, only 4 companies exceed 10,000 tons and most of the companies have annual production of few thousands tons. Particularly in Bulqiza mine, mining operations of many small companies are conducted close to the workings of Albanian Chrome. The concession areas of small companies are distributed closely or horizontally overlap, being occupied by different companies in different level of galleries.

The mining operations of small companies are not continuous because they are strongly affected by price and demand of chromite. Further many of their operations conducted disregarding the safety regulations. But it is necessary for them to continue exploitation activities in line with chromite market in the world.

These companies with number of employees from 7 to 38 are medium to small scale chromite companies in Albania and their annual productions of chromite ore are few thousand tons. Most of chromite ore is considered to be exported from Durres port. Because the selling price of chromite ore went down from 300US\$ in 2008 to 125US\$ in 2009, some of the companies reduced production in 2009. The mining cost of chromite ore in each companies ranges from 60US\$/t to 120US\$/t and, in addition to this, 30US\$/t is necessary for transportation to Durres port and expenditure for exportation. If the selling price of chromite ore is 125US\$/t the same as 2009, it is difficult for mine owners to get benefit. If they want to get more benefit from selling chromite ore, they must wait until chromite ore price goes up.

2) Establishing integrated production system

Since chromite ore is heavy with high specific gravity, it is disadvantageous to export chromite ore because of high transportation cost. Further, developed countries, such as Japan and Germany, only import ferrochrome after smelting chromite ore in chromite ore producing countries (South Africa, Kazakhstan and other countries) with low cost of electricity and labor. In 2009, Albania exported 243,000 tons of chromite ore and only 6,000 tons of ferrochrome including both of high carbon and low carbon. For making best use of Albanian chromite resources for benefit of Albania, it is better to export value added material of ferrochrome than chromite ore. For this, additional smelting plants and concentration plants are necessary.

3) Assurance of chromite reserves for future

For sustainable development of chromite mining of Albania, it is necessary to assure mineable reserves of chromite ore for future. According to AGS information, chromite resources of 32.8 million tons ($B+C_1+C_2$) is reported to exist in Albania. A total of chromite resource declared by each of concession holder in 2009 is 7.79 million tons and this amount of resource will be depleted in 25 years if production of chromite ore continues at 300,000 tons/year, the same production rate as present. But these values are mineral resources and they are not minable reserves. It is, therefore, necessary to obtain more precisely the amount of mineral reserves for future plan of exploitation of chromite ore. At present all the exploitation activities in Albania are conducted in the mines developed by state company before 1990. By using abundant geological data accumulated by the state company, it is necessary to conduct exploration program to find new deposits for development of new mines.

4.2.6 Strategy for Development of Chromite Mining

The purpose of the strategy is to make best use of chromite resources existed in Albania for the benefit of the country and people living there. For this, mining operation by coordination of few big companies and many small companies by playing each role is necessary for increasing production and continuous operation. Further, to increase the benefit from chromite resources, it is necessary to produce value added materials from chromite ore for exportation. It is, therefore, necessary to establish an integrated system of chromite production in Albania. For sustainable development of chromite mining, it is necessary to assure ore reserves and increase their value.

1) Coordination of large companies and small companies

Chromite mining in Albania is conducted by two clearly different types of company. The one is large company by foreign investment, such as Albanian Chrome operating in the Bulqiza mine and JV of Turkey and China companies which will start operation soon in Kalimash and Vlahna mines, and the other is many medium to small scale Albanian companies operating in many places. For further discussion, these two types of companies are separately treated in the report. Although there are relatively large mines such as Bulqiza mine in Albania, most of the mines and ore deposits are small with mineral resources of less than 500,000 tons. These small mines and ore deposits are never considered by big foreign companies for investment. Further, in big mines operated by state company in the past, such as Bulqiza-Batra mine, some high grade chromite ores remain untouched and they are being exploited by small companies now. To make best use of these chromite resources of small mines and remaining ores in big mines, exploitation work can only be conducted by small companies. Since the mining activities of small companies are economically, socially, strongly connected to local community, these mining activities can not be disregarded for maintaining stability of local community. It is, therefore, suggested that chromite mining of Albania should be developed by the coordination of large company with foreign investment and other small local companies by playing each role.

As mentioned in the previous section, there are many problems for small scale mining operation of small companies and suggestions for solving these problems are given below.

(1) Intensify monitoring of concession by AKBN

Among 163 concessions of chromite exploitation, 53 of them show no production in 2009. Further, these concessions reported only few employees or no employee and most of them reported no investment in 2009. It is doubtful that the owners of these concessions have an intention of further exploitation activities. The intention of further exploitation activities in future of these concessions should be confirmed from the owner through monitoring activities of the concessions, conducted by AKBN twice a year. If no exploitation activities are planned in future, strict action should be taken. A

task force was organized in May 2010 by METE to regulate illegal and no-license exploitation activities in Bulqiza area and 7 licenses were suspended. Since dormant exploitation license prevents ambitious new comers to start mining activities, strict action should be taken by AKBN to suspend unnecessary licenses. Particularly, in Bulqiza mine where many small companies conduct mining activities close to each other, it is necessary for AKBN and DSRMI to give enough guidance to them for preventing accidents and the submission of work plan by each mining company to AKBN should be mandatory.

During the mining operation, it is necessary for AKBN and DSRMI to patrol mine workings to check whether mining operation are conducted in compliance with technical and safety regulations.

(2) Establishing an association of small companies

Considering future exploitation activities of small companies, it is necessary to establish associations with cooperative function. Chromite ore is produced mainly from three separate areas of Tropoja-Kukes, Bulqiza and Shebeniku-Pogradec. Considering these areas, a national level association should be established for sharing equipments and facilities, countering the fluctuation of chromite ore price, assisting finances for exploration programs and upgrading mining facilities. By this way, it is necessary to establish the chromite mining industry of Albania in line with world market.

In Chile, the national mining company ENAMI (Empresa Nacional de Minería) was established for the purpose of supporting small and medium scale mining in 1960 (JICA, 2002). ENAMI devotes itself to promote the development of small and medium scale mining. Without operating its own mines, ENAMI provides small or medium-scale miners with partially subsidized services at purchase of ores to boost productivity, especially when copper price is unfavorable to the industry. ENAMI achieves its role by processing these crude or intermediate materials through its plants and smelters to widely marketable products, like electrolytic copper, gold, silver and so on. ENAMI provide processing service well as marketing service on behalf of small or medium miners to promote the sector.

Adopting similar applicable activities of ENAMI to the case of Albania chromite mining, the suggested roles of association of chromite mining are summarized below.

a. Support mine development by financing

Development of mines is usually accompanied with financial risks because the market price of chromite often fluctuates. The association would provide the mining companies with long or short term loans, guarantee against risks and other benefits to promote the development.

b. Purchasing ore and processing in concentration plant

The association would purchase chromite ore from small companies and low grade chromite ore would be sent to concentration plant before sending it to smelting plant. The price of purchasing chromite ore is set between high price and low price of chromite ore market. If the price becomes higher than the association price, the balance will be saved in the association for preparing for the time of low price.

c. Work actively for operation improvement, new technology and countermeasure for environmental problems.

In addition to above, in the case of chromite mining in Albania, it is necessary for the association to have functions of sharing equipments for mining operation and concentration plant. Mine rescue team of regional level should be organized in the association to be sent to even small mine in remote areas. It is necessary to establish either association of chromite mining by financial assistance of the government or state company with above mentioned function.

The movement similar to founding association is already observed in Batra mine where five people, 3 mine owners of small companies, one investor (Albanian) and one Chinese investor, invested for

establishing small concentration plant and it is operational now, treating 3,000 tons/month of chromite ore. But not only Batra area but if whole area of Albania is considered, it is necessary to establish the association of chromite mining assisted by the government.

In Albania chromite mining is conducted in three separate areas of Tropoja-Kukes, Bulqiza, Shebeniku-Pogradec and, in these three areas, it is necessary for both of big companies and small companies to continue mining operation. If small companies maintain recent production amount in future by foundation of association and Albanian Chrome attain the target production of 250,000 tons/year, and if Kalimash-Vlahna mine produce chromite ore of 210,000 tons/year according to the contract, chromite production will become more than twice (675,000 tons/year) of present production (Table 4.2.3).

It is difficult for small companies to constantly continue mining operation. But if the association of small companies is established, they can continue mining operation avoiding closing mine. In this way chromite resources of Albania are efficiently utilized and stability of local society is maintained.

Table 4.2.3 Target production of chromite ore

Tropoja-Kukes	2009 (t)	Future (t/year)		
	Production of ore	Production of ore	Concentrates	Ferrochrome
Association of small companies	49,899	50,000	-	-
Kalimash Mine	0	210,000	90,000	30,000
Sub Total	49,899	260,000	90,000	30,000

Bulqiza	2009 (t)	Future (t/year)		
	Production of ore	Production of ore	Concentrates	Ferrochrome
Association of Small companies	154,924	150,000	-	-
Albanian Chrome	78,437	250,000	-	24,000
Sub Total	233,361	400,000		24,000

Sheb-Prog	2009 (t)	Future (t/year)		
	Production of ore	Production of ore	Concentrates	Ferrochrome
Association of small company	15,163	15,000	-	-
Sub Total	15,163	15,000		

Grand Total	298,423	675,000		54,000
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2) Establishing integrated system of chromite production

For bringing benefit to Albania by optimal use of chromite resources, it is necessary to establish an integrated system of chromite mining, including processes of mining-dressing-smelting. Chromite ore production of Albania in 2009 is 298,000 tons, but production of ferrochrome is as low as 6,000 tons.

At preset, operational smelting plant of chromite in Albania is only Elbasan Smelting Plant operated by Albanian Chrome and only chromite ore exploited by Albanian Chrome in Bulqiza mine is used for smelting. Concentration plant is only found in Bulqiza-Batra area and, in the northern part of Tropoja-Kukes area, low grade chromite ore is sent to a concentration plant of Kosovo. For establishing the integrated system of production (mining-dressing-smelting) in Albania, additional concentration plants and smelting plants are necessary.

AKBN or AKBN with some experts should conduct a study to find an optimal system for smelting the chromite ores and concentrates of big companies and small companies.

By completing the material flow described above, it is necessary for Albania to establish chromite mining industry in line with world market and, then, ferrochrome can be exported to European and China.

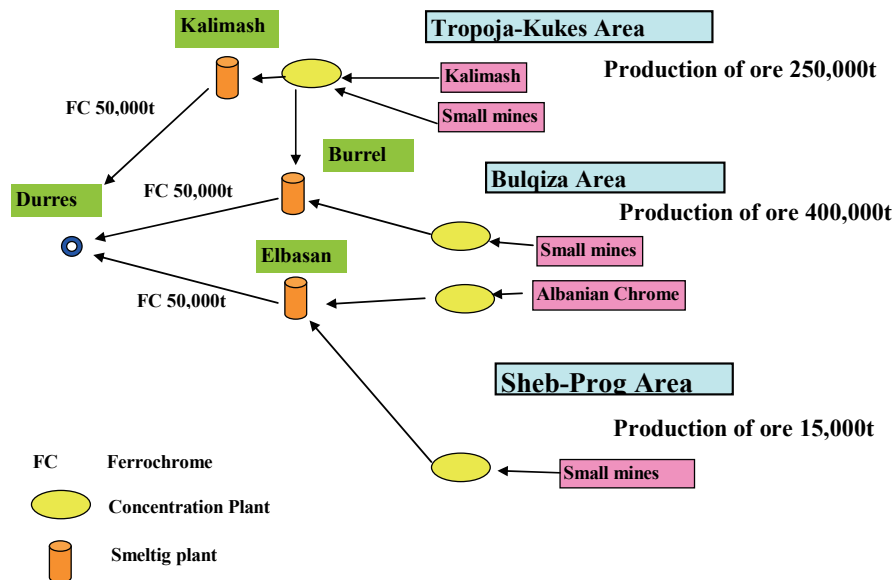


Figure 4.2.7 Material flow of future

3) Assuring mineral resources

According to AGS information, mineral resource of chromite ore is 32.8 million tons (B+C1+C2) and, further, a total of chromite resource declared by each of concession holder in 2009 is 7.79 million tons. But these values are mineral resources, not mineral reserves. For the sustainable exploitation of chromite deposits, it is, consequently, necessary to grade up these values to mineral reserves by adding factors of economy viability and feasibility by conducting surveys. It is, also, necessary to find new chromite deposits.

(1) Up grading resources to reserves

Most of the amounts of resources claimed by exploitation license holders are B+C1+C2 of Albanian classification, corresponding to indicated or inferred resources of the international classification. For assuring chromite resources for making exploitation plan of future, it is necessary to upgrade these values of mineral resources to mineral reserves. If the results of the survey suggest insufficient remaining reserves for particular mine under operation, closing of mine should be considered after taking out remaining ore. For the survey of upgrading resources, it is necessary to conduct drilling and feasibility studies. Although it is big economic burden for mine owner of small companies, it is necessary for making future exploitation plan. As mentioned in the previous section of (2) in 1), financing for this should be assisted by the association of small companies.

(2) Exploration work for finding new deposits

Since chromite deposits do not have geochemical and geophysical halos in their surrounding zone, it is difficult to find concealed deposits. The exploration of chromite deposit, therefore, starts from field survey trying to find fragments of chromite ore along rivers running through the area of ultramafic rocks. If the fragments of chromite ore are found, tracing of fragments continues toward upper stream to find exposure of the chromite mineralization. In Albania, vigorous exploration work was conducted

for chromite deposits, particularly in 1970s by the state exploration agency and 1,100 occurrences of chromite mineralization are known. It is, therefore, difficult to find new locations of exposed chromite mineralization anymore. The exploration work should be conducted by tracing known mineralization by detail geological survey and drilling survey based on the information of existing mineral occurrences and deposits. Because of occurrences of many folds and faults in ultramafic rocks, detailed geological surveys are necessary. As shown by Beqirai et al., (2000), the horizon of the occurrences of chromite deposit are mostly restricted in transitional zone of crust-mantle and upper to middle horizon of harzburgite tectonite. It is necessary to conduct detailed geological surveys by establishing lithological classification and stratigraphic sequence.

Two areas are recommended as prospective area for future exploration program,

- Zogaj mine and its surroundings in Tropoja-Kukes massif with mineral resources of 1.24 million tons.
- Area of transitional zone to tectonite harzburgite between Krast mine and Ternova mine.

Currently, two Canadian junior companies are conducting exploration work of chromite, respectively, in Tropoja-Kukes massif and Bulqiza massif. Other than these, 64 exploration licenses and 4 prospecting licenses are registered by Albanian company. It is necessary for AGS to establish detailed lithological classification and structure of ultramafic massifs through reviewing existing information and field survey based on the modern theory of ophiolite. Exploration companies can purchase the results of these as guide for exploration program and a part of results should be accessible by internet for foreign investors.

4.3 Copper

4.3.1 Overview of the Copper Mining

Mineable copper deposit type in Albania is the volcanogenic massive sulfide deposits (VMS) which occur mainly in the northern six regions of Albania (Figure 4.3.1).

During the planned economic regime, plenty of deposits were discovered through systematic exploration by Albanian Geological Survey (AGS). ALBAKOR, government mining corporation, developed some of them for mining operation and produced cathodes in Albania. The largest mine was the Gjegjan mine which produced 145kt of copper metal. However most of the deposits were small deposits containing less than 50kt of copper metal. Owing to lack of international competitiveness, these mines were forced to stop operation after transformation to a free market system and then in 1997 the copper mining industry was completely ceased. In 2001, BERAMB, Turkish mining company participated copper mining and they started production in the Munella mine. Currently BERAMB is operating both the Munella and Lak Roshi mines and exporting copper concentrates to China.

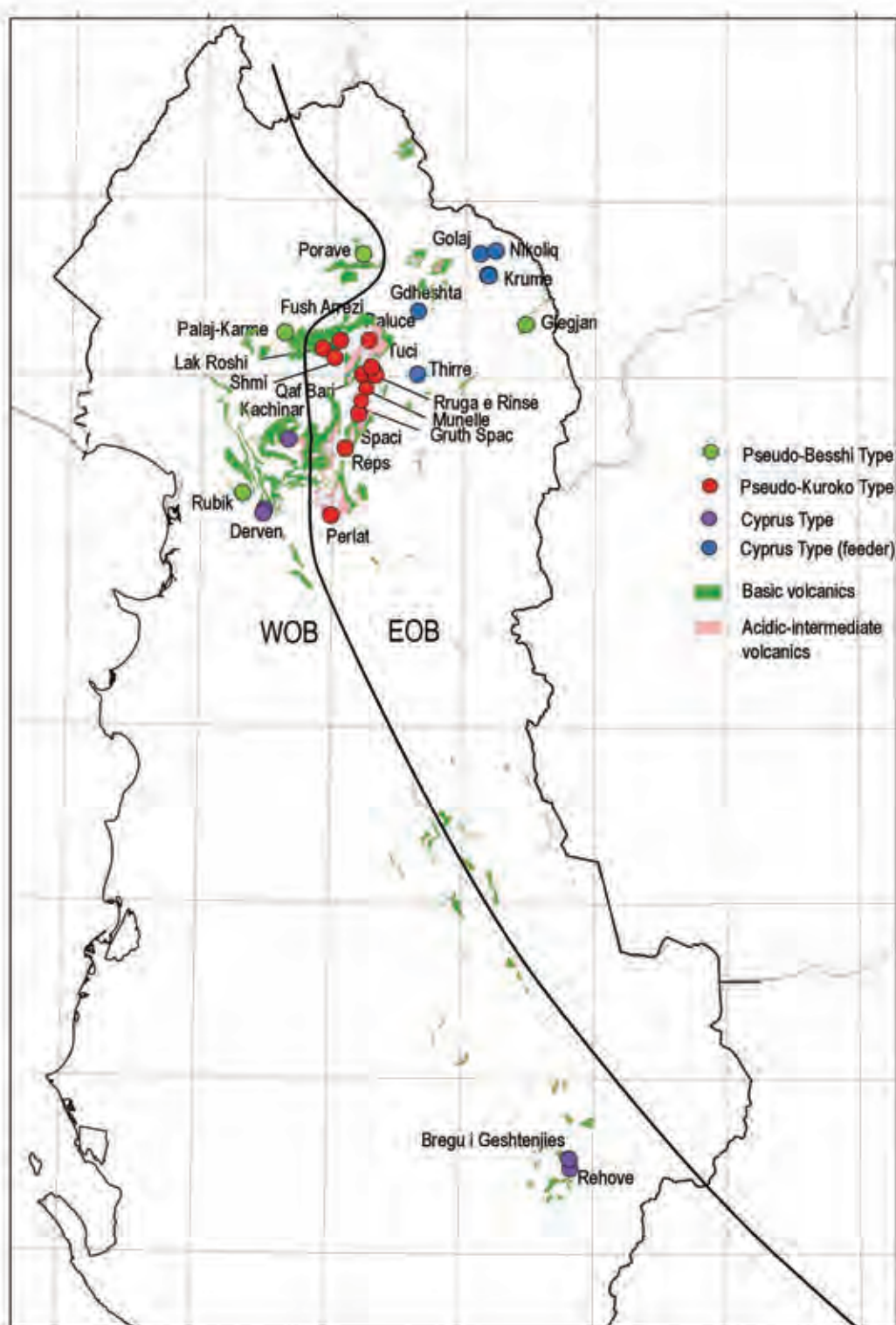
Since 2007, TIREX, Canadian junior mining company and other 3 foreign exploration companies have been conducting exploration with world standard tactics and discoveries of new mineable deposits are expected. According to data of AKBN, remaining copper resources are estimated to be 21.67 million tons with 1.86% Cu. Except for the Munella and Lak Roshi deposits, others are too small to consider starting mining operation at present. Judging from geology in Albania, it is assumed that the probability of discovery of the world class copper deposits is very low, but discovering few minable deposits with few hundred kt copper metal seems to be possible. In order to encourage copper mining in Albania, it is urged to discover mineable deposits as soon as possible. However exploration and mining by domestic mining companies are thought to be difficult in view of technology and finance, so it is necessary for the government to take some actions to attract foreign investors.

4.3.2 Past Production

The modern copper mining in Albania started before World War II by the Italian enterprise in the Rubik area. After the war, the Albanian government took actions for promotion of copper mining. As a result, a lot of new copper deposits were discovered as shown in Figure 4.3.1. The Albania government developed 25 mines and established 7 beneficiation plants, 3 smelters and 2 refinery plants, and one fabrication factory (Figure 4.3.2). The operated mines were mainly concentrated in Has, Tropoja, Puka, Mirdita, Kukes and Lezhe provinces, northern part of Albania excepting the Rehove mine located near the border with Greece.

Except for the Gjegjan deposit, most of the deposits were developed by the method of sub-level caving, however interval of each sub-level was not exceeded 6-7m due to the capacity of rock drill. Recovery rate of ore was 70-80%, productivity of per annum was 600-650t/person and production cost was 12US\$/t.

Each beneficiation plant received crude ores from one to nine mines located near the plant. The technology and facilities were so old that recorded mineral recovery rate was 75-85%, grade of copper concentrate 16.4%, annual production capacity of each plants 55-60kt/a at maximum and beneficiation cost of 6US\$/t of ore.



(AGS data)

Figure 4.3.1 Distribution of major copper deposits

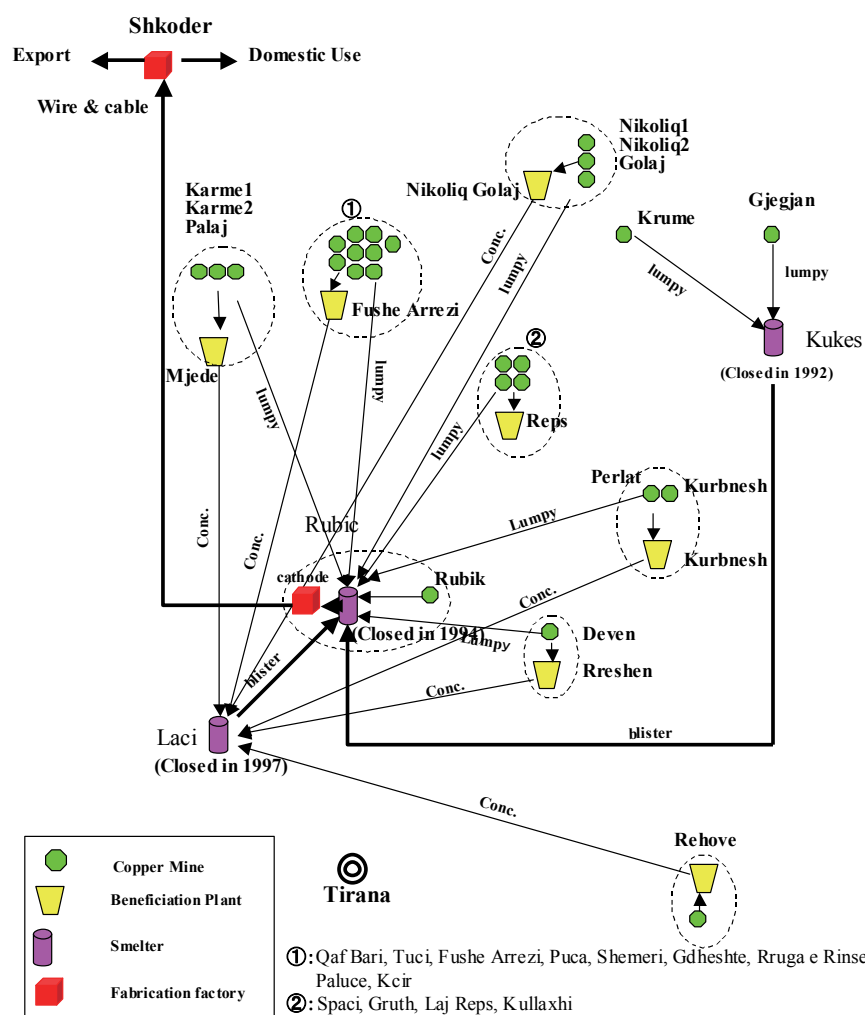


Figure 4.3.2 Copper material flow before 2000

High grade lumpy ores were sent directly to the smelters without milling. Low grade ores under 2% Cu were treated at the beneficiation plants. The Kukes smelter treated only lumpy ore and then blisters were sent to the Laci refinery. Concentrates were sent to smelters such as the Rubik or Laci smelter, and blisters were refined there. Some of the blisters produced at the Rubik smelter were refined at the Laci refinery. At the Rubik plant, other metals such as gold, silver and selenium were recovered from residual dross. The Laci smelter also produced sulfuric acid as a by-product which was then used for producing fertilizer at the chemical plant in Laci. Cathodes (electric copper) were manufactured to wire and bar at the Shkoder factory and then shipped to foreign countries and local users. Total productions of by-products recorded are as follows; H_2SO_4 : 20,000t, Au: 100kg, Ag: 1000kg, Se: 4t, bronze and brass: 1,200t, and copper sulfate: 1,500t respectively.

Production of copper and other by-products have increased since 1960s and culminated in the late 1980s. In 1987, 1,166,000 tons of crude ore, 55,000 tons of concentrates and 16,000 tons of refined copper were produced as shown in Figure 4.3.3. Given that grade of crude ore was 2.0%Cu and recovery rate was 70%, estimated production of refined copper was around 16,000 tons. This figure is the same number as Japanese copper production in 1988. However refined production was too small as one country. Under the planned economic regime production was controlled by the ALBKER, however they focused on achieving targets and not on profitability. At the end of the planned economic regime in 1991, the production of copper drastically dropped and a struggle with the privatization of mining industry continued. Due to the economical difficulties and breakout of a riot, the smelters were forced to stop production and the copper mining industry in Albania collapsed completely until the re-start of operation in 2007 by foreign investors. After stopping operation, mines,

beneficiation plants and smelters/refineries were laid in ruin and in some area mining pollutions were remained.

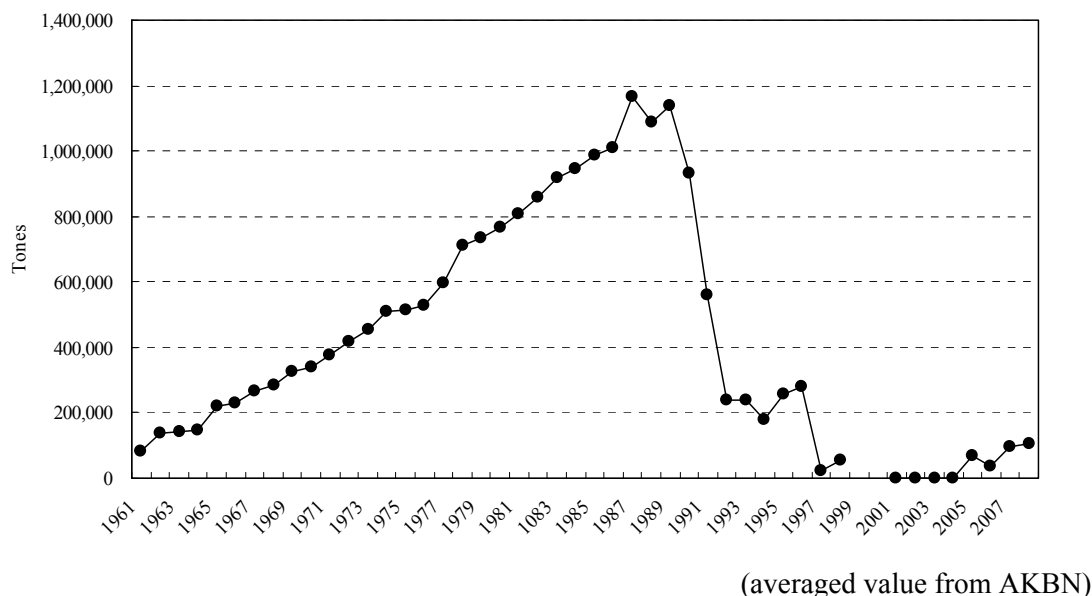


Figure 4.3.3 Copper ore production in Albania

4.3.3 Current Copper Mining Activity

Under the revised mining law (1994), mining licenses could be granted to private mining companies. In 1996, NEBEREX, Canadian junior mining company first acquired exploration license in the Puka-Mirdita region, however they dropped out due to financial problem. Afterwards, BERALBA, a local subsidiary of the Turkish mining company obtained mining license in 2001 and started operation of the Munelle mine in 2007.

The exploitation licenses registered as of January 2010 are only 5 (2 for BELALB, 1 each for Tete Albania Tunneling & Mining, Glejdis and Echo). However license of Glejdis is for slag of Laci smelter and that of Echo is for tailings of the Gjegjan mine. The number of the exploration license is 16. Total coverage of all licenses is 661.919km². Among the licenses, Albanian company is only 5 including Kromex. Others are foreign companies, gathering in northern part of Albania, especially in the Puka-Mirdita region. It goes without saying that current copper mining is not so active.

1) Exploration

After withdrawal of NEBEREX, in 2007 the Tirex Exploration, Canadian junior mining company, acquired exploration licenses in the Puka-Mirdita region covering 550km² and started exploration activity based on the conceptual exploration model of the Noranda type volcanogenic massive sulfide deposits. The company applied the common exploration methods for volcanogenic massive sulfide deposits such as airborne magnetics, airborne EM and IP for volcanogenic massive sulfide deposits. The methods such as airborne geophysics were the first time to have been conducted in Albania. The TIREX has conducted 47 drill holes, 15,400m so far to follow up geophysical anomalies and obtained some promising results i.e. in MR08-2 intersected 60.4m, 1.1% Cu, 6.7% Zn and 1.6g/t Au, and etc. (<http://www.tirexresources.com/>).

Balkan Resources, Canadian junior mining company, is also conducting drilling at closed Perlat mine located at the southern margin of the Puka-Mirdita region, targeting volcanogenic massive sulfide

deposits (<http://www.balkanresources.com/>). They, also, hold license of tailings, interested in recovering copper from accumulated tailings which is thought to contain higher grade of copper.

Jab Resources, Australian junior mining company, started exploration covering area of 100km² near Rubik in 2009, targeting at the gold bearing volcanogenic massive sulfide deposit, and they have already discovered gold anomalies in gossan (<http://www.jabresources.com/>). The highest grade of gold recorded is 320g/t in quartz vein. However the mining license has been terminated at present.

Volcanic Metals, also Canadian junior mining company, recently acquired exploration license around the Gjegjan deposit, covering area of 200km² in the Eastern Ophiolite Belt and they have already finished airborne geophysics (GEOTECK VTEM, helicopter magnetic and electro magnetics) with expenditure of Can\$300,000 (<http://www.volcanicmetals.com/>).

2) Mining

In 2001, BERALBA shpk, a subsidiary of Turkish company Nesco Metals (former Ber- Oner) were granted a mining license in ex-Munelle mine and began development of the mine, and they started production in 2007. In 2009, the company also re-started operation of the Lak Roshi mine located near the Munelle mine. These two are currently operating copper mine in Albania.

In the Munelle mine, they excavate high grade part of the deposits, called Munelle II located below 850m level. In 2009, they produced 70,000t at 3.3%Cu of crude ore in the Munelle and 30,000t at 3.3%Cu in the Lac Roshi respectively. The company has a plan to increase ore production to 250,000 t/a and then finally to 500,000t/a, combining the production of both mines.

Crude ores from both mines at grade of 3%Cu, 2%Zn, 3g/tAu and 60g/tAg are processed at the Fushe Arrezi beneficiation plant located 11 km north of the Munelle mine, which BERALBA rehabilitated ex-Fushe Arrezi plant operated by ALBKER during the planned economic regime. The recovery rate is 85%, raised from 77% by innovation. Unfortunately zinc is not recovered and tailings with zinc are accumulated in tailing dam. Copper concentrates are shipped to China via Shengggjin port. Pure excavation cost is estimated to be 18US\$/t and cost including depreciation and tax is 32US\$/t. The BERALBA is now considering to re-open the Karma mine located in Shkoder province.

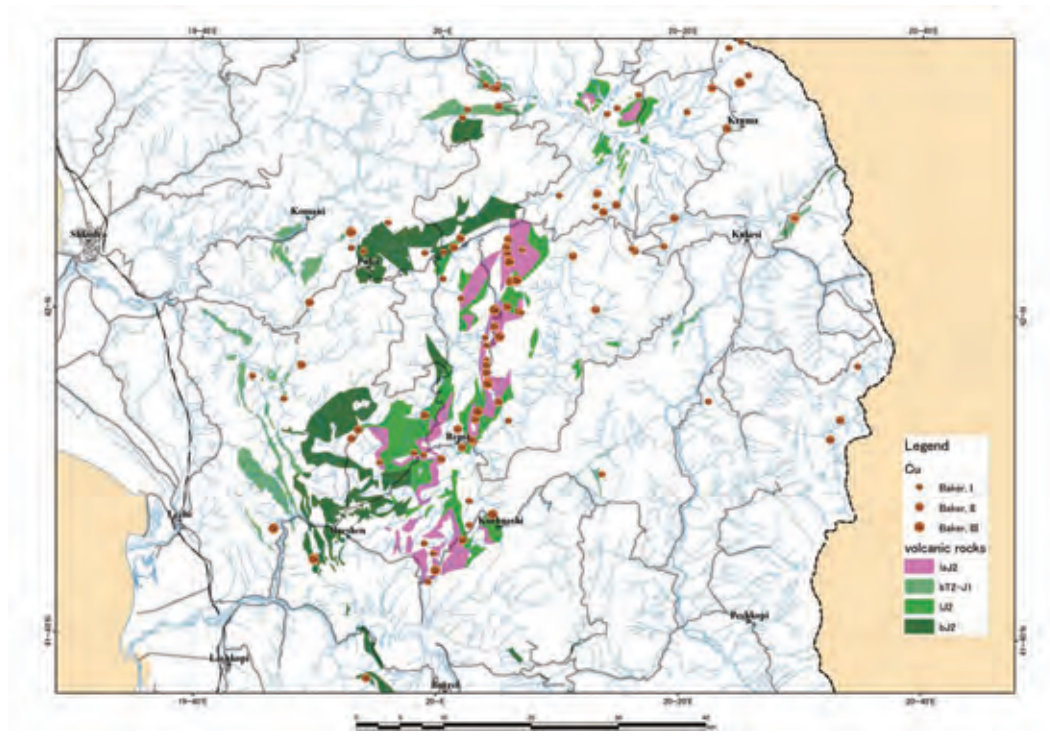
4.3.4 Potentiality of Copper Resources

The largest copper deposit, with more than 100kt copper metal, discovered and developed so far in Albania is the Gjegjan deposits which had original geological resources of 5.28 million tons at 3% Cu (=Cu: 158kt) and followed by the Spaci deposit with 10 million tons at 1.1%Cu (Cu=110kt) and the others range from few hundred thousand to few millions tons at grade of 0.95 to 3.85Cu% (Hoxha et al., 2005). Accordingly the size of expected deposit in ophiolite of Albania might be tens of millions tons with 1-2%Cu at largest. Examples of the world class Kuroko deposits are Neves Corvo (270Mt, Portugal), Aljustrel (250Mt, Portugal), Rio Tinto (250Mt, Spain), La Zarza (164Mt, Spain), Horne (150Mt, Canada), Kid Creek (149.3Mt, Canada, Brunswick No.12 (137.3Mt, Canada) etc. Acidic volcanism in Albania is quite small scale compared with that of the world class deposits. Consequently the expected size of copper deposits in Albanian ophiolite zone is expected to be tens of million tons at the maximum.

The most promising type of deposits and their occurrences in Albania are the “pseudo Kuroko” type despoits and the Puka-Mirdita region which extends 50km in North-South direction and 10km in East-West direction. In the area, intermediate to acidic volcanic rocks are distributed closely associated with cluster of small but plenty of ore bodies (Figure 4.3.4).

The Munelle deposit is composed of many lenticular ore bodies in the mineralized zone. Unfortunately country rock of ore bodies is not described in detail, however it is assumed to be acidic volcanic rocks. Within the area, dome like massive parts were depicted which are thought to be

domes or stocks of acidic rocks. Quartz or silica bed overlies on the sphalerite dominant ores. Chalcopyrite dominant ores underlies them. Pyrite ores occupy deeper and central zone. This kind of configuration of mineral zoning and host rock are quite similar to those of the Kuroko deposits. That is the reason why the deposits in the Puka-Mirdita region are considered as “the pseudo Kuroko” deposits. As a matter of course, more information for making clear comparison is needed.



(modified from AGS database)

green color: basic rocks, pink: acidic to intermediate rocks

Figure 4.3.4 Distribution of volcanics and VMS deposits in the northern part of Albania

4.3.5 Issues to be considered in Copper Mining

Although there are plenty of VMS deposits in Albania, the probability of existence of the world class deposits is very low compared with in the area of other metallogenic provinces of VMS such as Canada, Portugal and the Ural. However copper deposits in Albania are one of the important natural resources to be used for economical diversity. In this section, issues existing in each process of mining are considered and, in the next section, some strategies of copper mining including direction and methodology are proposed in order to breakthrough the current impasses.

1) Exploration -to increase reserves with higher grade

The key issue in the Albanian copper mining is that mineable reserves are too small in spite of abundant deposits being discovered. The Albanian government carried out systematic exploration during the planned economic regime, but both of the methods and exploration models applied were old.

Various information including field evidences suggest that the volcanogenic massive sulfide deposits in the Puka-Mirdita region, which is characterized by supra-subduction zone (SSZ) volcanism, is quite similar to the Kuroko deposits in the world. The TIREX, Canadian junior mining company, started exploration with the concept model taken from the Noranda VMS deposit and implemented airborne geophysics. The modern analogue of SSZ of the Albania, related to subduction in intra-oceanic environment, is the Izu-Ogasawara arc where submarine hydrothermal deposits are actually being formed, which are thought to be proto type of the Kuroko deposits. By making comparison with well

known Kuroko deposits in Japan, precise evaluation of potentiality of massive sulfide deposits in the Puka-Mirdita region would be possible. Furthermore, modern exploration techniques like lithogeochemistry and bore hole geophysics, that were very effective to discover the blinded ore bodies of Kuroko deposits in Japan, are recommended to be carried out in Albania. The “pseudo Besshi” type deposits like the Gjegjan deposits contains high grade copper. However, as mentioned earlier, if it is mélange as interpreted by many geologists, potentiality of finding this type of deposit is considered to be difficult. It is, therefore, necessary to review all copper deposits in Albania again based on world standard models.

2) Mining -to increase ore recovery and decrease operation cost

Like the Kuroko deposits in Japan, almost all VMS deposits in Albania are concealed few hundred meters below surface and show irregular forms. The mining methods applied and currently being applied are sub-level caving which was thought to be the most economical method to the Albanian VMS. In general, sub-level caving method is suitable for development of large massive deposit, like the Kiruna, Sweden and it is said that it has some demerit such as high ratio of waste and difficulty of selection of faces. It is necessary to study optimal mining method with higher recovery and lower cost. It is recommended that efficient excavation and beneficiation technologies applying to small scale deposits of low economical value and recovering remaining metals in tailings should be considered. For these, a concept of the “compact mining system” advocated by Yamatomi (University of Tokyo) may be applicable.

3) Beneficiation -to increase mineral recovery and recovery of other minerals

Ore minerals of the “pseudo Kuroko deposits in Puka-Mirdita region are fine grained and consisted with chalcopyrite, pyrite, sphalerite and etc. consequently mineral separation is difficult and as a result only copper has recovered. Recovery rate of copper concentrate was low, 85% at maximum. The recovery rate of the Fushe Arrezi beneficiation plant currently operating by BERALBA is 85% and Cu grade of concentrate is 19%. It should be improved up to over 90% like the Kuroko ore in Japan. Although in the past only copper was recovered, it is desirable to consider recovering zinc as well at the plant.

4) Feasibility of smelting in Albania

During the planned economic regime two smelters and refineries (Rubic and Laci) and one smelter (Kukes) produced cathodes. However these plants were small and produced, at largest, 10,000t/a en bloc. Currently there is not any operating smelting plant in Albania. Considering current mineable reserves not only in Albania but also neighboring countries, constructing new smelting and refinery plants in Albania is not recommended. Even small scale custom smelter is not profitable (Table 4.3.1).

Table 4.3.1 Construction and operation cost of small scale smelter and refinery

(Research Institute data)

	Capacity	CAPEX	TC	RC	Cost	Revenue	Balance
Smelter	20,000t/a	60M\$	60\$/t conc.		30 ¢ /lb ^{*1}	19 ¢ /lb ^{*3}	-11 ¢ /lb
Refinery	20,000t/a			6 ¢ /lb metal	8 ¢ /lb ^{*2}	10 ¢ /lb ^{*4}	2 ¢ /lb

^{*1} average of small scale 5 smelter

^{*2} average of small scale 5 refinery

^{*3} TC:9.5 ¢ /lb, bonus 4.5 ¢ /lb, sulfur credit 5 ¢ /lb, 28.5%Cu

^{*4} RC:6 ¢ /lb, Premium:5.5 ¢ /lb, freight:1.5 ¢ /lb

5) Environmental treatments –development of environmental load zero mine

The VMS deposits is polymetallic and rich in sulfide minerals such as pyrite, chalcopyrite, sphalerite, galena, arsenopyrite etc. compared with chromite and lateritic nickel ore. Moreover sulfide minerals produce sulphuric acid by oxidation and then semi-permanently acid water might seep. It is necessary to take measures of environmental treatment not only during operation but also after closing mines. When the government grant exploitation licenses to the owners of the concession, the government should be obliged them to take measure for environmental treatment after closing mine and confirm necessary funds to avoid problems remaining in many closed mines and beneficiation plants in Albania.

6) Player of the copper mining -well financed and skilled enterprise-

Mining of VMS deposits needs more technology and investment compared with lateritic nickel and chromite mining and as a consequence it would be difficult to be operated by domestic mining companies by themselves. No major mining companies are expected to have interest in copper mining in Albania. Foreign enterprise, especially junior mining companies and or small companies who are not listed on the major markets might be necessary for conducting mining operation. Development of mining technology of domestic mining enterprise and employment of local engineer and staff are also necessary.

7) Knowledge of mineral deposits and know-how of exploration technologies –ability to communicate with the world exploration companies

During the planned economic regime, AGS employed plenty of exploration specialists and implemented exploration with higher level knowledge and technology, however they became older and left from AGS due to retirement or reduction in force. Currently most of the geologists in AGS are engaged in production of geological maps and data-base. Thereafter economic geologists and exploration geologists are too scarce. Moreover they lack the ability to evaluate mineral potential by the world standard scheme and to introduce mineral potential of Albania to the world investors.

4.3.6 Strategies for Development of Copper Resource

Based on discussion described above, the following strategies for development of copper resources are proposed.

1) Direction to pursue

The copper deposit in Albania is classified as the volcanogenic massive sulfide deposits and existence of few ten kilo tons of copper bearing deposits are expected. To encourage copper mining for future in Albania, “Finding mineable copper resources” and “Efficient recovery of copper from the existing small mines and tailings” are recommended. Further in addition to above two, “Strengthen mutual interface between AGS and university” is recommended.

According to forecast of research organizations of the world, consumption of copper will increase due to economic growth of newly industrializing countries and copper price will remain the level of late 2010s. These circumstances are good for Albanian copper mining. Appropriate copper mining development will surely contribute to the economic growth of Albania.

Since copper mine operation by only domestic mining companies are thought to be difficult because underground mining of sulfide deposits needs higher level of mining, beneficiation and environment technologies, it is desirable to be operated by experienced foreign companies.

Because a small custom smelter will not be efficient and would not be competitive in the international market, and moreover stable supply of copper concentrates will be insufficient judging from

potentiality of not only Albania but also neighboring countries, it is not recommended to build a smelter and refinery in Albania.

2) Methodology

A. Finding mineable copper resources

It is urged to discover mineable deposits in order to encourage copper mining industry in Albania. As copper deposits in Albania are hosted in ophiolite, consequently target area is restricted to volcanic and plutonic members. Considering the existing data and information, the following promising areas are recommended:

- the area of acidic volcanics (SSZ ophiolite zone shown as I in Figure 4.3.5) from Fushe Arrezi to Spaci as the first priority
- basaltic rock area from Rubik to Puke (MORB ophiolite zone shown as II in Figure 4.3.5), -- the eastern part of northern Albania (around the Gjogjan mine shown as III in Figure 4.3.5) -- southern part of Albania (around the Rehove mine shown as II in Figure 4.3.5).

As a basic survey, the airborne geophysics and satellite image analysis should be applied to delineate promising areas. Demagnetized and argillic alteration zones will be targets for further exploration.

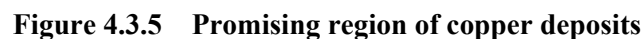
In order to characterize the volcanogenic massive sulfide deposits in Albania and to establish empirical local model, world volcanogenic massive sulfide deposits and their published genetic models should be reviewed by AGS in cooperation with staff of the Faculty of Geology and Mining and Geosciences Institute of the Polytech University of Albania. Newly developed empirical local model should be examined using the information of Archive Center of AGS. Using results of these together with the results of airborne geophysics and satellite image analysis, selection of promising areas which should be recommended to foreign investors is made. The airborne geophysics and satellite image analysis are so expensive that it will take time to realize. Re-analysis of the existing data in the Archive Center is recommended to start as soon as possible without considering the airborne geophysics and satellite image analysis.

Regarding the existing data analysis and formulation of empirical local model, working procedures are shown as below.

- (a) To understand the characteristics of the typical Cyprus, Kuroko and Besshi type deposits and to formulate general concept model of each volcanogenic massive sulfide deposits: Useful information could be obtained from the following published data; Geology of Kuroko Deposits (Special Publication No.6, 1976, Society of Mining Geologist of Japan), Mineral Deposits Profile (B.C. Geological Survey, Canada) and Volcanic Associated Massive Sulfide Deposits (Review in Economic Geology, Volume 8, 1999, Society of Economic Geologist).
- (b) To formulate local empirical model based on paper and text on the volcanogenic massive sulfide deposits in Albania and neighboring countries: This can be done by modification of the general concept model mentioned above.
- (c) To analyze and evaluate the following items by comparison with local empirical model:
 - / Understanding original rock types of altered rocks and their original features.
 - / mineral zoning, history of volcanic activity, mineralization and alteration to the original setting.
- (d) To understand volcanic activity and mineralization and select promising areas.

Function of the Mineral Resources Department of AGS is consisted of re-evaluation of previous geological survey and exploration, elaboration of criteria and basic principals of extension of deposit and supplying geological information to investors. Recommendations described above are all included in the function of AGS and they can be conducted within the function of AGS. Currently they are conducting project II-3 and II-5 (formulating data base and evaluation of unevaluated ore deposits). By adding tasks of formulation of empirical local model and re-evaluation of existing data

Participation to the international program such as IGCP-52 (Global Comparison of Volcanic-hosted massive sulfides, organized by Rodney Allen) is recommended for not only strengthening ability of information acquisition, but also presenting information of the copper potentiality of Albania to foreign countries for attracting world concern.



B. Re-evaluation and efficient development of known small sized deposits including remaining valuable metals in tailings.

Although plenty of small deposits are known, many of them are not exploited or closed without complete exploitation. Although mine operation is not a function of the government, for making best use of valuable resources, AKBN should take measure for the efficient recovery methods. Specifically based on the reserve estimation carried out during the planned economic regime, rough economical evaluation should be conducted for each deposit by the international standard. Then, by the concept of the compact mining system (compensate scale demerit by small, high efficiency and high recovery mining system to combined plural small sized deposits), development of small scale mining operation should be considered. The idea of the compact mining system is also applicable to small nickel and chromite mines. It is also recommended for AKBN to conduct pre-feasibility study for recovery of valuable metals from tailings dams instead of private companies and then entrust recovery work to private companies.

AKBN also should advise to the operating mines for optimum mining methods such as underhand cut and fill instead of sublevel caving, and optimum beneficiation method such as usage of hot water and SO₂ in order to raise recovery rate. Excavation of only high grade ore and un-recovery of contained valuable metals should be avoided for preventing loss of national treasury.

4.4 Nickel

4.4.1 Overview of the Nickel Mining

Nickel deposits in the eastern part of Albania are fossilized lateritic nickel deposits formed from the Cretaceous to Paleogene and constitutes a part of the metallogenic province of the Balkan lateritic nickel deposits that extends from Turkey to Serbia via Macedonia Albania and Kosovo. Albanian nickel deposits are distributed in clusters consisting of Kukes, Librazhd-Pogradec and Devolli as shown in Figure 4.4.1. Total geological resources of nickel deposits are estimated to be around 300Mt with 1.01% Ni. Compared with other lateritic nickel deposits in the world, Albanian nickel deposits are small to medium size, and relatively low grade. Nickel ores are consisted with limonitic ore (called Fe-Ni ore in Albania) and saprolite-garnierite ore (called Ni-Si ore in Albania). Librazhd-Pogradec cluster is dominated with Fe-Ni ore and Kukes and Devolli clusters are rich in Ni-Fe ore.

During the planned economy regime, the Albanian government erected the plant of CARON method in the Elbasan steel complex and produced nickel metal and oxide cobalt from 1978 to 1986. However due to the technical obstacles, production did not go well in accordance to plan. They implemented laboratory test of pyro-metallurgy at the Elkem, Norwegian metallurgical company. Technologically it turned out to be possible, however the idea have not implemented to the Elbasan plant so far.

At the end of 2009, eleven Albanian mining companies and one Macedonian company were operating nickel mines in small scale in the three clusters. They produced 95kt of nickel ore with 1% Ni and then export them to smelters in Kosovo and Macedonia. Currently neither nickel metal nor interim product of nickel is produced in Albania. Joint venture of European Nickel and Balkan Resources has been conducting pre-feasibility study aiming to recover nickel mainly by the method of heap-leaching.

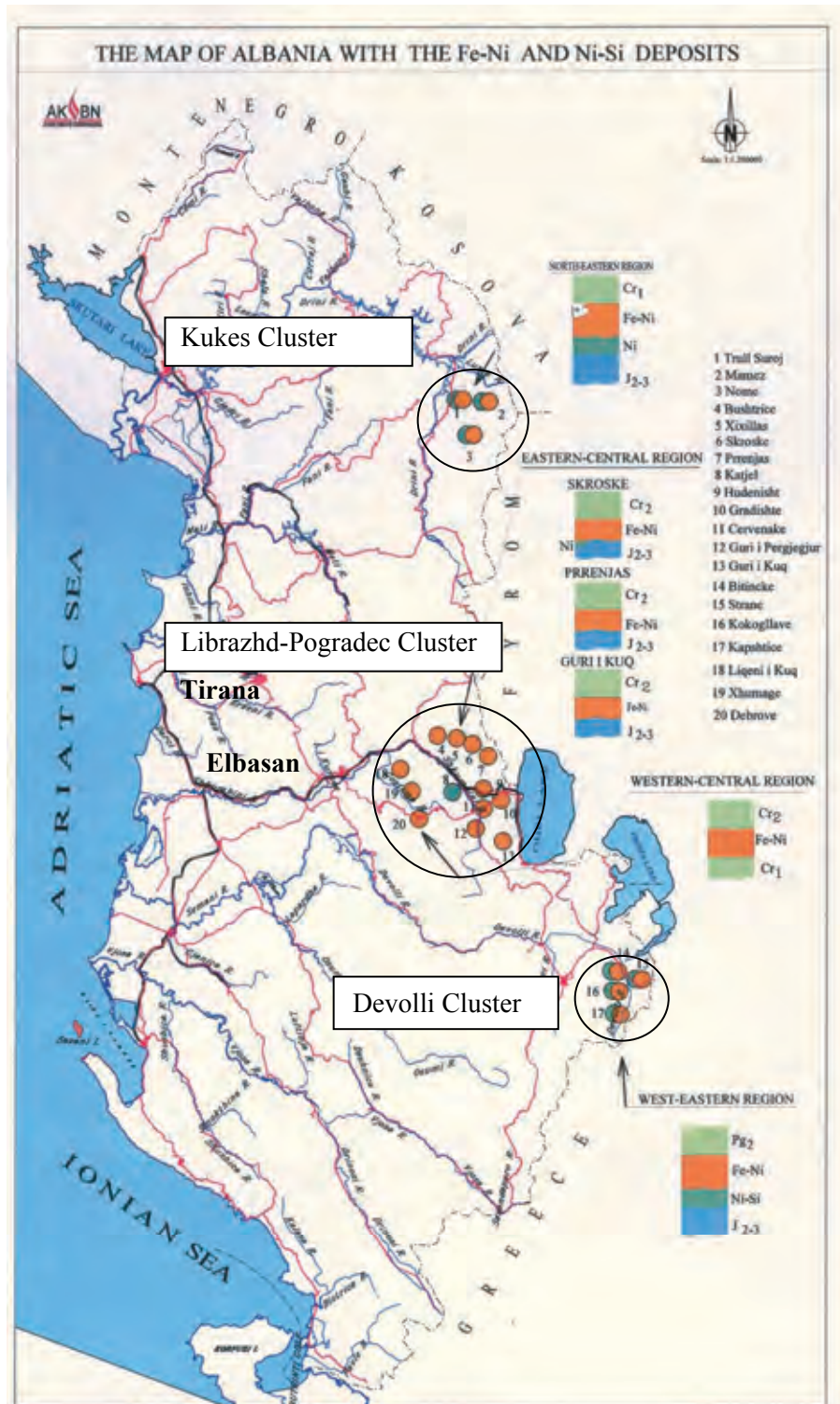
Neighboring countries such as Kosovo, Macedonia and Greece have been operating nickel smelters. It is desirable to invite foreign mining companies for mining operation and extracting nickel in Albania in order to add value to the raw materials. Otherwise, there is alternative to keep position of only exporting nickel ores to the neighboring countries as the case now stands. In order to invite foreign investment, it is thought to be necessary to make up more basic information regarding the characteristics of ores and establish conceptual models for extraction of nickel in Albania by the government.

4.4.2 Past Production

In the period of planned economy regime, lateritic nickel deposits, especially Fe-Ni type deposits such as the Prrreja and Gur i Kuq mines in the Librazhd-Pogradec cluster were excavated, and the ores were transported to the Elbasan Steel Complex and smelted. The infrastructure around the large Prrreja and Gur i Kuq deposits was relatively good because they were located close to the national road, European road E852, railroad and settlements. Old facilities such as mine shafts and beneficiation plants can be observed from the national road. In the yard of Pogradec station lateritic nickel ores are piled up. Most of mines excluding the Cervenak were underground. According to information from AKBN, around 18 million tons of lateritic nickel ores was excavated from late 1950's to 1991 (Figure 4.4.2). Before start operation of the nickel plant in Elbasan, they exported lateritic nickel ore to the Eastern Europe. During this period lateritic nickel ores of Ni-Si type of the Kukes and Devolli clusters were not mined due to a lack of metallurgical technology for this type of ore in Albania. The production of lateritic nickel ore re-started operation in 2005 in the Kukes, Librazhd-Pogradec and Devolli clusters, respectively.

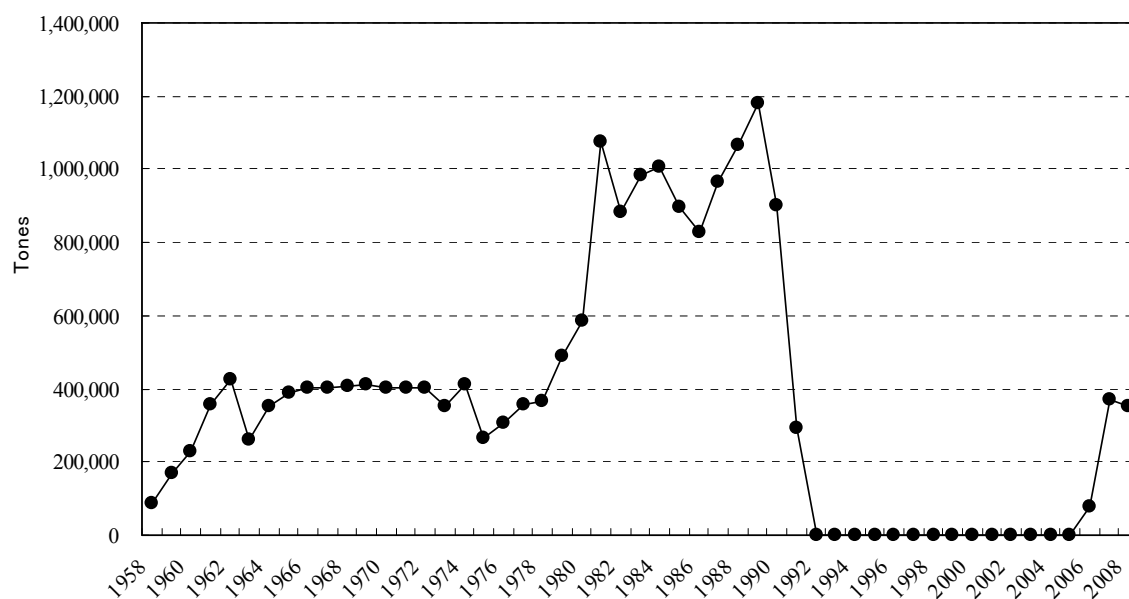
In the Elbasan steel complex, electric nickel and oxide cobalt were produced from 1981 to 1992 by the CARON process which was constructed with Chinese materials and technology. However production was limited to only 3,500 tons of electric nickel due to higher cost, low operational rate and insufficient supply of raw material. By the smelting test carried out by Elkem, Norwegian company, it

turned out to be optimistic to recover ferro-nickel from Ni-Si ores supplied from Devolli and Kukes clusters. Construction cost of a smelting plant in Elbasan was also estimated to be around 3.6 million US\$ at that time (ITNPM and AGS, 2005). However this idea has not yet been put in practice so far.



(source: AKBN)

Figure 4.4.1 Distribution of lateritic nickel deposits in Albania and their stratigraphy



(source: AKBN)

Figure 4.4.2 Lateritic nickel ore production in Albania

4.4.3 Current Activity of Nickel Mining

After long dormant of mining operation and exploration since 1993, operation of nickel mines started again in 2005 in Devrova (F-Ni) and Skroska (Fe-Ni) mines of the Librazhd-Pogradec cluster, Bitincke (Ni-Si) and Kapshitica (Ni-Si) mines of the Deveoll cluster, and Trull (Ni-Si) and Suroj (Ni-Fe) mines of the Kukës clusters. Except for the new mine, Devrova, these are restarted mines which private companies acquired new licenses under the new mining law of 1994. As of December 2009, 30 companies are registered for mining licenses of nickel. Exploitation license is 30, exploration license is 6 and prospecting license is 2. Among them foreign companies are: Macedonia: 2, Canada:1, UK:1, and China:1.

1) Exploration

The mode of occurrence of lateritic nickel deposits in Albania is simple, showing stratified layer and the grass root exploration is not normally conducted. Currently Adriatic Nickel, a subsidiary of European Nickel and Balkan Resources, Canadian junior mining company, acquired exploration licenses in the Devolli region and established joint exploration company, Devolli Resources, and they have been conducting advanced stage exploration at Kokogllave and Devolli area. According to their pre-feasibility study, which is to be completed by the end of 2010, their target is successful heap leaching of the mined ore near the mine site or transporting crude ore to the Greece smelter. JORC compliant resource estimations of Devolli is 35.6Mt at an average grade of 1.2% Ni and other resources estimates are: 26.4Mt at an average grade of 1.21% Ni for Balkan's Kokogllave and 37Mt at an average grade of 1.21% Ni for Balkan's Zemblaku. In the south western part of Albania, the lakes of Ohrid and Prespa are distributed crossing over the border of Albania and Macedonia and there is chorus of concern regarding usage of sulphuric acid for the heap leaching.

Balkan Resources have carried out drilling at the Librazhd-Pogradec cluster and discovered a new layer of lateritic nickel in the conglomerate strata occurring beneath the known lateritic nickel horizon. Unfortunately it was too thin to mine.

2) Mining

As described above, 6 mines started operation in 2005. In 2009, 12 mines produced lateritic nickel ore. Among 10 companies, only A&F Nickel is owned by the Macedonian enterprise. Except for the Skroska and Bitincke mines, all of them are operated by open pit mining. The Kapshitica mine is currently operated by open pit mining, however it is not clear whether they can continue open pit mining, because the lateritic layer inclines to deeper level to underground.

In 2009, 3 companies produced 43kt of nickel ore in the Devolli cluster and 7 companies produced 51.84kt in the Librazhd-Pogradec cluster. All of run of mine ores are shipped by trucks (20t) to the Feni Industry, Macedonia and the Ferrinikeli smelter, Kosovo. The grade of nickel ore is inferred to be around 1%, so around 0.98kt of nickel metal were produced and shipped to foreign countries. Ore is transported to Kosovo for around 120km and to Macedonia for around 250km by trailer with 20t of lorryload.

Current mining methods in Kukes and Devolli clusters are open pit. However the mining of the Devolli cluster have to be changed to underground mining because ore body decline at 20-30 degree to underground. Some mines in the Librazhd-Pogradec are operated by underground mining. For example, Skroske mine owned by the local company Gerold sh.p.k. is operated by underground mining using room and pillar method, because ore seam is flat and hanging wall is composed with hard and stable limestone. They are operating mines with only 3 to 11 employees just like a home industry. Ore price is 25-32US\$/t of ore at grade of 1.1%Ni and Fe<38%. Production cost is around 2.95-11 US\$/t of ore and transportation cost is 0.06US\$/t of 0.08 US\$/t ore km.

4.4.4 Nickel Mining in the Neighboring Countries

As shown in Figure 4.4.3, not only lateritic nickel mines but also nickel smelting plants are under operation in the neighboring countries such as Kosovo, Macedonia and Greece.

Larco, Greece state owned company, is now operating three domestic lateritic nickel mines such as Kastoria, Evia and Agoioannis and they are sending raw materials to Larymna smelting plant owned by the same company. The Kastroia mine is located near the national border with Albania and ore is sent to the Larymna smelter by truck (<http://www.larco.gr/nickel.php>). They also import nickel ore not only from the Caldag mine in Turkey, but also from PT Antam in Indonesia. Ores from various sources are blended. Capacity of the smelter is 25,000t/year of Ni containing ferro-nickel. Production is almost steady for recent 10 years.

In Macedonia, Feni Industry, owned by BSG Resources of French company, has been operating a smelter in Kavadarci. Production has increased since 2000, and in 2007 and 2008 around 15kt/a was recorded. The raw materials are supplied from the domestic nickel mine, Rzanova. However domestic supply is not sufficient and they rely on supplies from Librazhd-Pogradec and Devolli clusters in Albania, and PT Antam, Indonesia.

The nickel smelter, Ferronikeli in Kosovo had been operated since former Yugoslavia era, but since 1998 it has been idle because the plant was destroyed by bombing by NATO air force. After independence of Kosovo, in 2005, Alferon, UK purchased it by 43MUS\$ in the course of privatization, invested 76MUS\$ and restarted operation in February 2007. Capacity of ferro-nickel production is around 11kt/a. In the second half of 2008, production was reduced one half of planned production due to low metal price. The Ferronikeli has also three open pit mines in Kosovo; the Dushkaja mine with estimated reserves of 6.2 million tons, the Suka mine with 0.8 million tons and the Gllavica mine with 6.8 million tons. It is said that nickel resources in Kosovo is not sufficient. They also import lateritic nickel ore from the Kukes cluster, Albania.

It should be inevitable for Albania nickel industry to consider the smelters in neighboring countries as competitors or raw material shipping countries in order to develop nickel recovery plan.

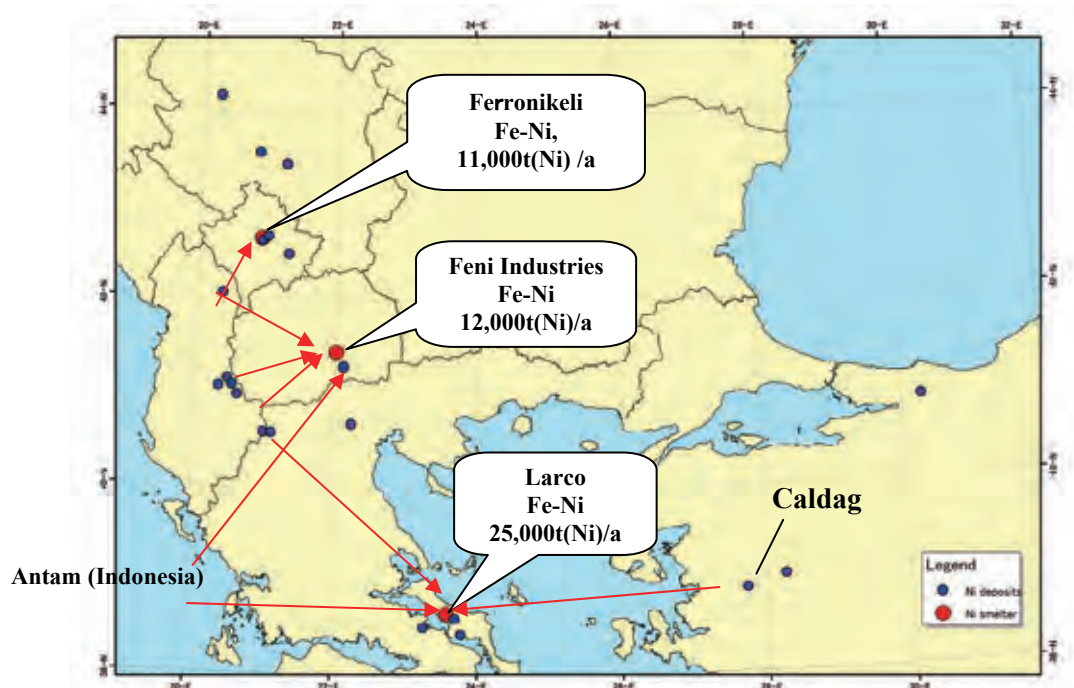


Figure 4.4.3 Nickel mines and smelters around Albania

(red arrow represents ore flow)

4.4.5 Potentiality of Lateritic Nickel Deposit

Nickel deposits in Albania are fossilized lateritic nickel deposits formed during the Cretaceous and Paleogene by uplifting of ultrabasic rocks over the surface during the process of convergent plate consisting of oceanic crust and mantle materials by closure of the Neo-Tethys ocean, and then lateritization, like the one observed in present tropical regions such as Southeast Asia and Caribbean islands, occurred to the ultrabasic rocks. After formation of laterite bed on the top of the exposed ultrabasic rocks, they were submerged below water again and overlain by limestone or molasse sediments. The area where ultrabasic rocks directly cropped out on the surface, laterite deposits have already been eroded out, however lateritic nickel deposits remain in place where ultrabasic rocks overlain by limestone (or molasse). Some part of the Librazhd –Pogradec cluster, lateritic nickel beds consisting of Fe-Ni ore occur within conglomerate. They are similar to CID (channel iron deposits) in Australia and thought to be reworked and re-deposited in the paleo-channels. There is possibility of discovery of re-sedimented laterite deposits by analysis of paleo-topography.

The Kukes cluster, with three nickel mines of the Trull-Suroj, Mamaza and Nome, has nickel-silicate reserves of around 80 million tons at grade of about 1.0%Ni and iron-nickel reserves of around 27 million tons.

Major mines of the Librazhd –Pogradec cluster are the Prenjas, Gur i Kuq, Bushtrica and Skoroska mines. They are characterized by iron-nickel deposits and 12 million tons of iron-nickel ore have been produced. Geological reserve of this cluster is estimated to be 141 million tons with 0.9% Ni.

In the Devolli (Blisht) cluster, four mines of the Bitincka, Kokogllava, Strana and Kapshtica occur as one continuous bed, covering a surface area of 60km². The Bitincka mine was opened in 1982 and operation was once stopped in 1992. During that period 750,000 tons of iron-nickel ores were produced. This cluster has 90 million tons of resources with 1.18% Ni.

4.4.6 Nickel Production Process

There are few kinds of nickel production process depending on the characteristics of raw materials. Generally limonitic lateritic nickel is suitable for leaching (hydrometallurgy), smelting (pyrometallurgy) is for saprolite-garnierite dominant nickel laterite. The CARON process (hydrometallurgy) is suitable for intermediate laterites between them.

Hydrometallurgical process has been developed for treatment of limonitic laterite ore in the countries such as Cuba and Australia. APL is the main method of leaching process and is used in Moa Bay, Cuba, where low Mg ore occurs. The ore is leached with sulphuric acid in an autoclave with high-pressure steam. PLS contains nickel and cobalt dissolution. After the treatments, the solution is thickened to leave nickel and cobalt sulfide matte of 50%Ni. HPAL (high pressure acid leach) process is alternatives of APL and many company tried to apply it but no success. Only the Sumitomo Metal Mining Co. Ltd has been operating smoothly at Coral Bay project in the Philippines.

The heap leaching of low grade limonitic lateritic ore with sulphuric acid is expected to be the low cost operation. For the Murrin Murrin project, Australia has applied this method. Research work on the heap leaching has been carried out in Greece by using low grade lateritic nickel ore funded by the European commission. One heap leaching plant is under construction at the Cladag project in Turkey owned by the European Nickel which will produce 20kt of Ni and 1kt of Co per annum (<http://www.enickel.co.uk/>). If this project goes well, application of this process to the Albanian lateritic nickel will be expected.

4.4.7 Issues to be considered in Nickel Mining

In spite of having own nickel resources, Albania is currently exporting lateritic nickel ores produced by small mining companies to the smelters in Macedonia and Kosovo without using it in own country. They produce neither nickel metal nor interim nickel products in Albania. In this section, the issues that should be considered for nickel mining in Albania are made clear and in the next section strategies for nickel mining including direction and methodology are given in order to develop this sector.

1) Exploration –to secure higher grade lateritic nickel ore

The lateritic nickel deposits of Albania are fossilized ones which occur as stratified beds being covered by sedimentary rocks and consequently exploration work is slightly difficult compared with that of present tropical regions. Outline of the distribution of the deposits has been identified already. Next target of exploration should be to find the area with higher grade ore. The Balkan Resources discovered plural lateritic nickel layers within the sedimentary rock, which are thought to be a reworked and re-deposited deposits like a channel iron deposits in the Pilbara region, Australia, so analysis of paleo-topography is recommended. It is regrettable that no systematic chemical analysis of obstacle substances such as phosphorous was not included in the previous survey results.

2) Mining —to reduce excavation cost

Except for the Kukes cluster, full-scale operation will be underground and as a consequence mining cost becomes higher to 15-20US\$/t ore compared with open pit mining cost of 3-10US\$/t ore. As nickel grade is low, reducing mining cost is one of the most important issues.

3) Nickel processing — finding the most appropriate methods

The nickel extraction process from lateritic nickel ores depends on the characteristics of laterite such as iron content, water content, clay mineral and so on. Generally smelting is suitable for saprolite-garnierite dominant laterites (Ni-Si ore), leaching process is for limonitic laterite ore (Fe-Ni ore) and the CARON process is for intermediate laterites between them.

The one of the reasons why mining development of nickel in Albania has been stagnated so far is the problems of processing. As described previously, productivity of the CARON process applied 1980s by using Fe-Ni ore from Librazhd-Pogradec cluster was very low due to shortage of knowledge and old facilities. In 1995-1996, the Elkem, Norwegian company, carried out smelting pilot plant test by the using Ni-Si ore from Kuke and Devolli clusters and obtained promising results. Unfortunately, nickel metal or interim nickel products have not been recovered in Albania since then. Currently nickel ore is exported to Ferronikeli smelter, Glogovac in Kosovo, around 120km away from Kukes and Feni smelter, Kavadarci in Macedonia, around 250km away from Progradec. Transportation cost is estimated to be around 10US\$/t ore to Kosovo and 22 US\$/t ore to Macedonia, making up majority of production cost.

Full scale mine operation and extraction of nickel in Albania have not yet developed due to low nickel content and high mining cost. In view of efficient use of domestic natural resources, recovery of nickel in Albania is the key point.

4) The main nickel mining player

Apart from copper mining in Albania, the owners of exploitation licenses are mainly Albanian enterprises except for A&F Nickel, Macedonian mining company. With respect to exploration, mainly foreign companies are taking part, such as Adriatic Nickel (a subsidiary of the European Nickel, UK), Balkan Resources (Canadian junior mining company), Kurum International (Turkey) and Inner Resources (China). It is difficult for domestic enterprise to carry out full-fledged mining development to meet demand of a large processing plant in future. But it is desirable to operate jointly so as to bring up domestic mining enterprises.

4.4.8 Strategies for Development of Nickel Resources

Based on discussion described above, the following strategies for development of nickel resources are proposed.

1) Direction to pursue

Geological resource of lateritic nickel deposits in Albania is estimated to be around 300Mt with 1.01% Ni, and they consist of many small to medium scale deposits, but they are low grade in general. Currently small mining companies are producing nickel ores and exporting to neighboring countries such as Kosovo and Macedonia. In order to efficiently utilize domestic natural resources in future, “recover nickel in Albania, add values to it and export” and “keep stable nickel ore production as raw material supplier to the neighboring countries” are recommended. The former should be given priority over the latter and the latter should complement to the former.

The Albanian lateritic nickel deposits are fossilized deposits and occurrence is well understood. Accordingly, regional geological survey is not thought to be necessary except for Kukes cluster where geological features of the depth have not been clarified in detail. The point is consideration of economical recovery methods of Ni and optimal method should be chosen.

2) Methodology

A. To establish the concept model of optimum nickel recovery in Albania

In order to realize the idea of “recovery of nickel in Albania”, study of optimum nickel recovery methods and their approximate economical evaluation must be considered. There are some nickel recovery methods from lateritic nickel deposits such as pyrometallurgy, CARON process, pressure acid leach, heap leaching and so on. Application of these methods is mainly depend on the characteristics of chemical and physical properties of ores. Lateritic nickel ores in Albania have also

different characteristics depending on each cluster. In the study, possibility of recovery of nickel is examined by taking consideration of characteristics of ores, cost of recovery and infrastructure for making approximate concept model. It is desirable to implement laboratory test for chemical and physical properties of the representative ores of each cluster. Possibility to produce nickel pig iron from low grade lateritic nickel ore, which method China started in 2005, should be considered. It is desirable that the government itself formulate concept model of recovery of nickel and promote investment for mining by delivering its ideas to foreign investors. The following candidates are considered (Figure 4.4.4).

(a) Produce ferro-nickel by pyrometallurgy method by using ores from the Kukes and the Devolli clusters

The pilot test conducted by Elkem clarified that Ni-Si ores from the Kukes and Devolli clusters were suitable for smelting. This idea follows the result of the pilot test. The new smelter will be constructed in Elbasan or near Durres, assuming using Ni-Si ore from the Kukes and Devolli clusters. Lignite from Tirana and/or Devolli as reductant and Ni-Si ore from the Devolli cluster will be transported by trains (Progozhine–Elbasan–Pogradec line). The ores from the Kukes cluster will be transported by trucks. Regarding location of the plant, ex-Elbasan steel complex is equipped with railway facilities, water and electric supply. However old facilities are so devastated and might be polluted that reuse and construction on the old plants should be avoided. Durres is also connected by railroad from Devolli and is equipped with port facilities. An alternative idea is to build a ferro-nickel plant in Kalimash where construction of new ferrochrome plant is planned.

(b) Produce nickel pig iron by using ores from the Librazhd-Pogradec clusters

This idea is to produce nickel pig iron by using Fe-Ni ores from the Librazhd-Pogradec cluster. An electric furnace plant will be built in the ex-Elbasan steel complex or near Durres. This process needs coke as reductant agent. For transportation of ore and coke, railway of Progozhine–Elbasan–Pogradec line is available. In Elbasan the Albanian Chrome is now producing ferrochrome by electric furnaces which use imported coke and it can be purchased jointly. Turkish steel maker, Kurum Holding is granted mining license of the Prrenjas nickel deposits and is considering production of nickel pig iron in Elbasan.

(c) Produce nickel metal by heap leaching using ores from the Devolli and/or the Librazhd-Pogradec clusters

The heap leaching is a challengeable method to produce nickel metals by using Fe-Ni ores of the Devolli and Librazhd-Pogradec clusters. Although processing near the mine site can reduce transportation cost, it is particularly important environmental problem for taking measures for leakage of sulphuric acid which spread from the heap leach pads. The Murrin Murrin project in Australia is currently operated by this process and new operation will start in the Caldag project in Turkey which is example of the first case in the area other than Australia. This method is attractive because it is applicable to low grade lateritic nickel deposits with lower cost.

Full scale mining operation will be mostly underground except for Kukes cluster. For the Kukes region, however, stripping ratio of will become higher. Consequently mining cost of the Albanian lateritic nickel ores definitively become higher. Cost reduction of smelting is inevitable for feasible operation. The average mining cost of 3 mines in Greece owned by Larco is reached to around 30US\$/t ore. This figure is three to four times higher than that of world laterite nickel mines. It goes without saying that lower cost recovery method of nickel should be selected in Albania.

In case of selecting method other than heap leaching, it is necessary to transport ore from mine site to the plant. For the case of heap leaching, it is necessary to transport sulphuric acid to mine site. To use national railways, which is cheaper than any other transportation in Albania, for transportation of raw materials with lower cost, it is urged to reform and modernize old railway facilities in cooperation

with the project of “CORRIDO VIII” and/or “Albanian Railway Network; improvement of infrastructure and signaling”.

B. Keep stable nickel ore production as raw material supplier to the neighboring countries

In each cluster, domestic and Macedonian mining companies have been producing lateritic nickel ores in small scale and they are shipped to Kosovo and Macedonia by trailer. However both smelters will have shortage of nickel ores for future. In 2009, 98kt of nickel ore, which is equivalent to 980t of nickel metal and value of 2MUS\$, was exported to those countries. If recovery of nickel in Albania will be shown to be difficult by the study above, small mining companies could continue to exist as a supplier of ore to smelters of neighboring countries. For local mining companies, operation of nickel mine is not so difficult because of lack of sulfide minerals which causes environmental problems. However shipping cost is so high that operation is hard, while nickel price is staying low. It is desirable that the government would make advice to mining companies to make long term contract with smelters and to adjust production volume of each mining company to sustain stable operation for long term.

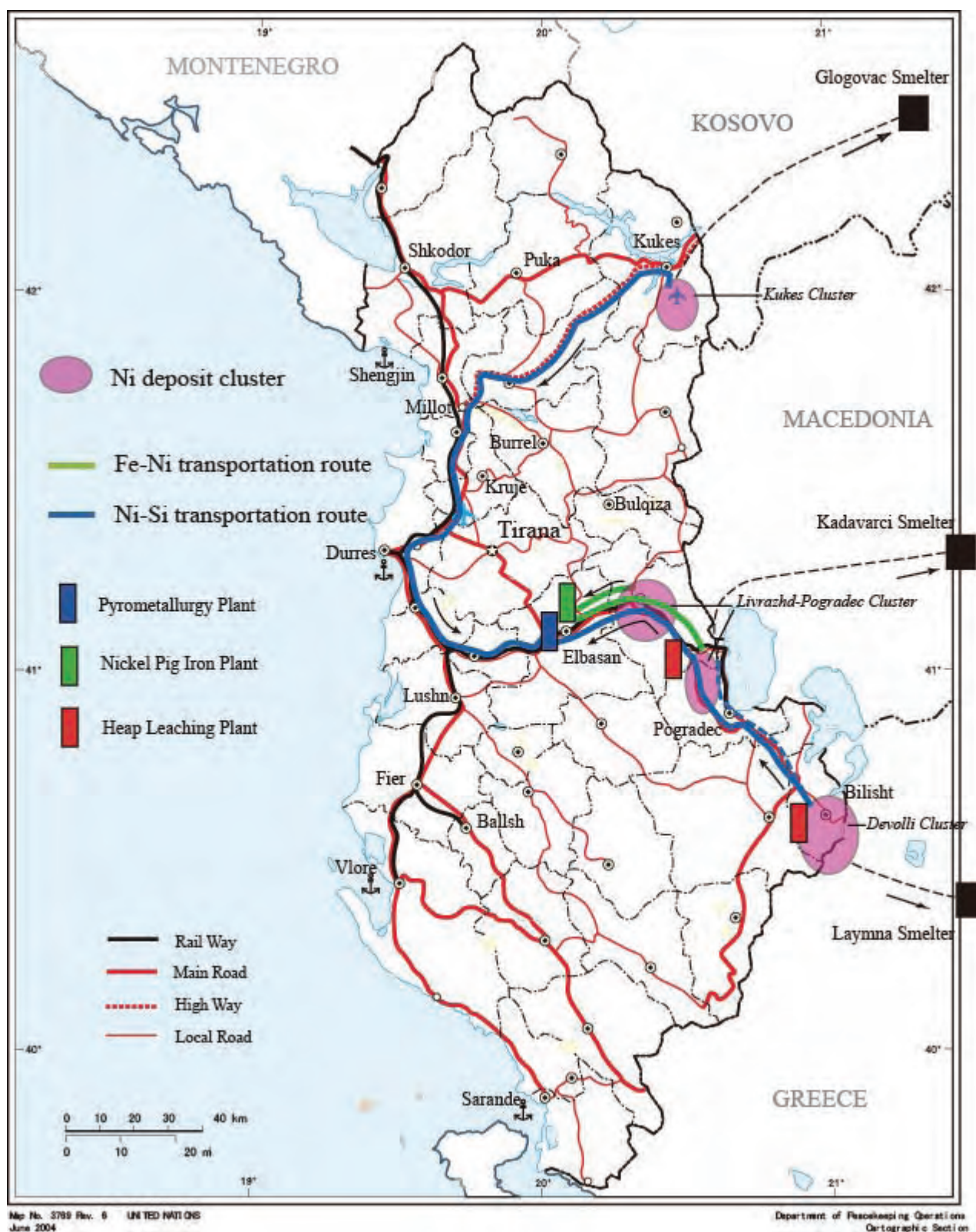


Figure 4.4.4 Ideas of nickel process in Albania

4.5 Non-metallic Resources

4.5.1 General

Albania has favorable geological nature of natural resources and is endowed by rich non-metallic resources such as limestone, dolomite, clay, bituminous resources, basalt and various decorative stones of ophiolite sequence rocks.

The number of licenses of non-metallic resources issued as of March 2010 and a map of their distribution are shown in Figure 4.5.1. Among 458 licenses of non-metallic resources, limestone is the most active sector, accounting for 264 licenses currently registered. By the license category of METE, limestone group rocks are separated in two types: one is limestone used for industrial material and cement industry and the other is decorative stones including limestone slab and limestone-marble. Decorative stones include various rocks other than limestone and sandstone such as conglomerate, dolomite, gabbro, granite, dunite, pyroxenite, troctolite, pelitic schist, serpentine. Natural bitumen, bituminous sand and bituminous gravel are included in bitumen. Other categories are basalt, clay, gypsum, kaolinite, bauxite, carbonate and magnesite. Among the licenses of non-metallic resources, 90% of them are exploitation license and the rest of them are exploration and prospecting-exploration licenses.

Because of the cement plants recently started production by foreign (Greece and Italy) investment and increase of road improvement project, limestone is the most active sector in non-metallic resources. In 2009, a total of nearly 6 million m³ of limestone was produced, and investment and number of employees are highest in limestone sector among the non-metallic resources, respectively, 1,175 million leke and 780 employees. Since clay is used for production of cement, activity of clay, with annual production of 1.3 million m³, is partly related to cement production. Quite a large number of people, totaling of 219 employees, are engaged in sector of decorative stones under categories of decorative stone, decorative limestone and sandstone, and investment of this sector reached to 500 million leke in 2009.

4.5.2 Prospective Non-metallic Resources

Among non-metallic resources, bitumen, materials for cement industries (limestone and clay), decorative stones (sandstone and limestone) and industrial materials (limestone and basalt) are considered to be most prospective for future development in Albania and development of these resources should be further promoted for boosting production for benefit of Albania.

Exploitation of bituminous substance is conducted by French company and more than 100 million leke was invested in 2009. Although enough resources of bituminous substance exist in Albania, investors are reluctant for investing for this sector because considerable investment is necessary for applying extraction technology and processing technology. More accurate understanding of potentiality of bituminous substance is required and the information of these should be open to foreign investors.

The demand of materials related to cement industry such as limestone and clay drastically increased recently by starting operation of foreign financed cement factory. If full operation of these factory and others planned to operate start, production of limestone will further increase in future. Since abundant resources of limestone, clay and gypsum exist in Albania, considering further continuation of improvement of infrastructure in Albania, in addition to export of cement to neighbor countries of Kosovo and Montenegro, cement industry has bright future.

Because of high demands of decorative stone such as sandstone, limestone and ophiolite rocks in Albania, decorative stones are imported. Recently, Albania started export of sandstone to Italy by the government support. Because of abundant high quality resources existed in Albania and high domestic demand of decorative stones, productions of these together with export are expected to increase in future. Further development of this sector should be driven forward including promotion

of foreign investment

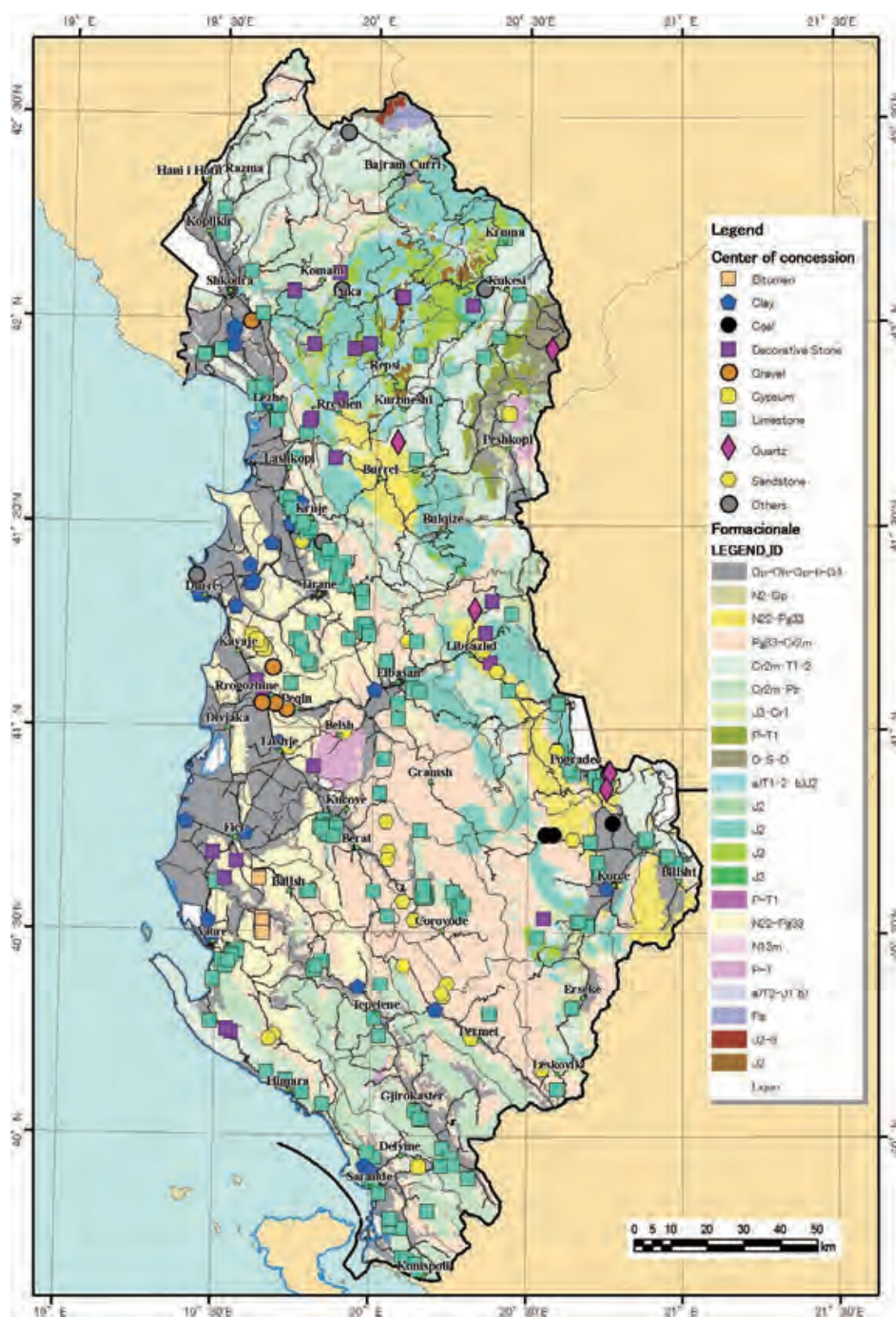


Figure 4.5.1 Distribution of non-metallic resources licenses

Because of further continuation of improvement of infrastructure of Albania and abundant resources existed, demand and production of industrial materials (limestone and basalt) are expected to increase

in future. The physical examination of Albanian basalt fulfills physical and technical specifications for pavement of road, railway track of normal trains and high speed trains, and basalt occurs in convenient locations for transportation. Development of basalt with consideration of export should be further driven forward.

Other than above, depending on change of economic situation and investment atmosphere, some of the non-metallic resources can be prospective if more detailed survey is conducted for understanding their resources. They are evaporates (gypsum, anhydrite and rock salt), phosphorite, quartz and silica sand.

4.5.3 Problems existing in Non-metallic Resources

Having favorable geological nature of various natural resources, Albania is rich in non-metallic resources. Among these, bitumen, materials for cement industries (limestone and clay), decorative stones (sandstone and limestone) and industrial materials (limestone and basalt) are considered to be most prospective for future development in Albania. Making best use of these non-metallic resources by driving forward further development, including promotion of foreign investment, will contribute greatly to economy of Albania. The problems that sector of non-metallic resources are currently facing are given below.

1) Situation and location of exploitation

The number of licenses for non-metallic resources is many, a total of 458 licenses being registered including exploitation and exploration. Categories of limestone and decorative stones, particularly, have many licenses and they are, respectively 254 and 90 licenses. Among the licenses of non-metallic metals, more than half of them (53% of limestone licenses and 58% of decorative stone licenses) show no production in 2009. Exception of few licenses, most of licenses with no production show no investment and no employee. There are many license owners whose intention of future exploitation work is not clear. These dormant exploitation licenses prevent ambitious new comers to start exploitation activities and they hamper development of non-metallic resources.

Many licenses with exploitation activities in quarry are being issued without enough consideration for natural, topographic and environmental aspects and there are some cases of existence of big quarry close to residential area. As a consequence, destruction of natural environment and environmental problems to inhabitants have been caused. In Kruja area, for example, there are many quarries close to residential area. In Ura Vajgurore of Berat, there is relatively large quarry of limestone close to residential area and the residents have been complaining of noises and destruction of houses by exploitation activities such as blasting in the quarry.

2) Lack of resource information

Although prospective non-metallic resources of Albania have potentiality of attracting interest of domestic and foreign investors, it is difficult for investors to find proper locations of investment because of lack of information. Further, some cases of unsuccessful investment because of lack of information were known. After establishment of quarry for exploitation of sandstone slab, it was realized at the production stage that exploited sandstone slab had so many fractures and it was impossible to obtain sandstone slab of necessary size. Another example is that after starting of exploitation of plagioclase granite for decorative stone in quarry, it was realized that the color of exploited plagioclase granite was different from the color that market wanted. Enough assessment of non-metallic resources, therefore, is necessary before making investment for exploitation. Since the investors of non-metallic resources are normally small companies without enough funds for assessing non-metallic resources, they tend to apply for license and start exploitation activities without having enough information of resources. For promoting investment for non-metallic resources, it is necessary to supply sufficient information including assessment of resources to investors.

3) Material flow

It is necessary to establish efficient systematic material flow boosting output in quarries to final market including processes of exploitation-processing-transportation-marketing-exportation. Since exploitation of non-metallic resources is conducted by many small companies, systematic efficient material flow is not observed.

4.5.4 Strategy for Development of Non-metallic Resources

The purpose of the strategy is to make best use of non-metallic resources existed in Albania for the benefit of the country and people living there. There are many licenses of non-metallic resources including unnecessary ones and some of license areas are located in improper site. Reconsideration of these licenses is necessary. For promotion of investment, it is necessary to properly understand and organize information of resources and the information can be accessible for domestic and foreign investors. Further, with the increase of production, it is necessary to establish efficient material flow.

1) Reconsideration of licenses by AKBN

A total of 423 exploitation licenses of non-metallic resources are registered and more than half of 233 licenses (55%) have no production in 2009. Among 233 licenses of no production, some of the companies (34 licenses) had investment in 2009 for preparation of future exploitation work. But most of the no production companies had no investment and no employee and it is doubtful whether owner of these companies have intention of future exploitation activities. These dormant licenses prevent ambitions new comers trying to start exploitation activities. According to the mining law, exploitation licenses of these non-metallic resources have duration of twenty years. It is necessary for AKBN to conduct monitoring of concession more strictly. The intension of further exploitation activities in future of these concessions should be confirmed from the owner through monitoring activities of concession conducted twice a year. If there is no exploitation activity planed in future, strict action should be taken.

Without enough consideration of environmental problems, license areas with quarry are often found close to residential area or in the area with hazardous topography. The guideline of issuing license should be reconsidered to issue licenses with enough environmental considerations. The area of exploitation activities should be designated in certain zones of area on each non-metallic resource basis. This practice would be feasible solution because, unlike metallic resources, non-metallic resources have a quite wide target area for exploitation.

2) Organizing information of non-metallic resources by coordination of AKBN and AGS

Study of non-metallic resources is included in functions of the promotion sector of AKBN. In 2009, two studies of non-metallic resources "Promotion of Albanian bauxite resource" and "Promotion of decorative stones of igneous origin" are conducted. Further, various examinations of non-metallic resources including measurement of physical properties are conducted in AKBN. While, in GSA, seven staff of Mineral Resources Department are assigned for non-metallic resources and they are conducting geological survey for understanding quality and quantity of non-metallic resources. But these two institutions are conducting survey and collecting information, separately.

The information of non-metallic resources is not enough and not well organized yet, and more survey and studies are necessary. It is strongly recommended that AKBN and AGS should work together for non-metallic resources by coordination. The current information concerning non-metallic resources owned by AKBN and AGS should be integrated and catalog of the prospective locations should be prepared. Results of geological survey, drilling survey, chemical nature, physical nature and rank of priority should be included in the catalog. Efforts should be made trying to obtain new information by conducting survey and making examination, and the information of catalog should be revised for each time new data is acquired. Particularly for the more prospective locations, it is necessary to understand geological and physical natures of underground by drilling. The catalog of prospective

location should be accessible for domestic and foreign investors for promotion of investment to non-metallic resources.

3) Establishing optimal material flow

Since exploitation of non-metallic resources is conducted by mostly many small companies, establishment of systematic efficient material flow including processes of exploitation-processing-transportation-marketing-exportation is necessary. Exploitation activities of sectors of industrial materials (limestone, basalt) and decorative stones (limestone, sandstone and ophiolite rocks) are particularly conducted by small companies. It is necessary to bring further development of this sector by establishing integrate system from quarries to final market. The effort for this should be done by an initiative of METE and AKBN.

CHAPTER 5 ENVIRONMENTAL CONSIDERATIONS

For sustainable development of Albanian mining sector, environmental/social consideration is a key factor and it is essential to improve management system of environment to withhold negative heritage to the future. Along with economic recession of 1990s, many mines reduced or stopped production and some of them were abandoned. Under these circumstances, it is expected that consideration of environmental protection has been forgotten and many sites with potential environmental problems exist. Considering integration of Albania to the European Union (EU) in future, formulation of sound management system of environmental protection and urgent implementation of it are necessary.

Understanding current problems and issues existed in management system of environment and mining activities of Albania, it is necessary to consider remedial measures for each problem and issue for formulation of feasible and sound management system of environment.

5.1 Environmental Legislations

The main legislation related to environmental management in Albania is shown in Table 5.1.1.

5.1.1 “Law on Environmental Protection” as Environmental Basic Law

The framework environmental law in Albania is Law No. 7664 “Law on Environmental Protection” instituted in 1993. The law emphasizes on importance of environmental protection as well as pollution control including air quality, water quality and soil contamination and mitigation of environmental risks, biodiversity, rational development of natural resources, prevention of excessive development, conservation of ecological protection areas, and conservation of ecological balance and living environment. Requirements for license of the Ministry of Environment, Forests and Water Management (MEFWA) for treatment of hazardous and dangerous wastes and implementation of environmental impact assessment (EIA) are regulated by this law.

5.1.2 “Law on Environmental Impact Assessment”

The “Law on Environmental Impact Assessment” was instituted by MEFWE in 2003, and it was partly revised in 2008. The law covers with classification of projects needing Environmental Impact Assessment (EIA), application form of EIA based on the classification, implementation of EIA, official review, council for evaluation of EIA, submission of final report of EIA and procedure of environmental permission. These contents were formulated in alignment with EU Directives (Table 5.1.1 (3)).

According to this law, implementation of EIA is required for mine development and closing of mines including countermeasure plans for mine pollution.

5.1.3 Other Legislation on Environment

Other legislation related to the environment consist of “Law on Protection of Air Pollution”, “Law on Water Reserves”, “Law on Environmental Treatment of Polluted Water”, “Law on Forest and Forestry Management”, specifying on pollution and countermeasures.

The “Law on Management of Hazardous Waste” and “Law on Environmental Management of Solid Waste” were instituted as basic laws on the waste management.

Management of the mining sector is controlled by the “Mining Law”, however the previous law was considered to be insufficient for the prevention of mine pollution. The treatment of mining wastes and tailings caused by mining activities are controlled by the “Mining Law”.

The “Mining Law” has been revised as a “New Mining Law” (adopted in July 2010). The “New Mining Law” obligates a company to submit a “Rehabilitation and Implementation Plan”, which aims to improve the mining environment based on the mine closure after mine development.

5.1.4 Environmental Standards

All of the environmental standards of Albania, including air quality, water quality, noise, etc, are based on EU standards.

Table 5.1.1 Environmental legislation of Albania
(1) Basic laws, etc.

No.	Name of Laws	Law Number and Enacted Year	Contents
1	Law on Environmental Protection	No.7664: 21/1/1993 No.8934: 5/9/2002, revised No.9890: 20/3/2008, revised No.9983: 8/9/2008, revised	Environmental basic law, aiming at importance of environmental protection, air quality, water quality and soil contamination, biodiversity, rational development of natural resources, etc.
2	Law on Environmental Impact Assessment	No.8990: 23/1/2003 No.10059:24/12/2008, revised	Formulation EIA :classification of project, implementation of EIA, submission of EIA report, environmental permission, etc.
3	Law on Protection of Air Pollution	No.8897: 16/5/2002	Protection law for protecting air pollution.
4	Law on Water Reserves	No.8093: 21/3/1996	Basic law for water reserves.
5	Law on Environmental Treatment of Polluted Water	No.9115: 24/7/2003	Protection law for water contamination.
6	Law on Management of Hazardous Waste	No.9537: 18/5/2006	Basic law on controlling hazardous wastes.
7	Law on Environmental Management of Solid Waste	No.9010: 13/7/2003	Basic law on controlling solid wastes.
8	Law on Forest and Forestry Management	No.9385: 4/5/2005	Basic law on forest protection and forestry management.
9	Mining Law	No.7491: 29/4/1991	Basic law on mining development, mining safety and closing mine, and it is presently in process of revising.

(2) Ministerial decrees on EIA

No.	Name of Legislation	Enacted Year	Contents
1	DCM No. 435 *1	12/09/2002	On norms of air discharges in the Republic of Albania.
2	DCM No. 103	31/03/2003	On Environment Monitoring in the Republic of Albania.
3	DCM No. 249	24/4/2003	“On the documentation approval for Environmental License and elements of the Environment Permission”.
4	DCM No. 805	4/12/2003	On the approval of the list of activities which have an impact on environment and need Environmental License.
5	DCM No. 268	24/04/2008	On the approval of regulations of proceedings and criteria to be equipped with EIA specialist certificate and environment audition.

*1 DCM :Decisions of Council of Ministers

Table 5.1.1 Environmental legislation of Albania
(3) EU directives related to environmental impact assessment

No.	EU Directives	Enacted Year	Content
1	EU Directive 85/337/EEC	1985	The environment impact assessment (EIA) resulting from the public and private projects, amended by directive 97/11/EC and Directive 2003/35/EC.
2	EU Directive 2001/42/EC	2001	On EIA of plans and programs.
3	EU Directive 2003/4/EC	2003	On Environmental information.
4	EU Directive 2003/35/EC	2003	On public participation.

5.2 Administrative Organization Related to Environment

5.2.1 Reorganization of MEFWA

The ministry has been newly reorganized into a system of five (5) general directorates, i.e. the General Directorate of Policy, the General Directorate of Assistance and Service, the Directorate of Combined Project, the Environmental Control Directorate and the Internal Auditing Directorate. The biodiversity department, the department of water resources and fishery, the department of forest, pasture and the environment protection department are established in the General Directorate of Policy, and the department of finance and budget and the personnel department are established in the General Directorate of Assistance and Service.

Although the environmental control related to pollution, etc. had been organized by the system of three (3) departments composed of the department of environmental pollution, regulation adjustment department and the department of environmental influence assessment in the year of 2009, the administrative work on regulation for pollution and on environmental control has been carried out by and under the Directorate of Environmental Administration and the work on environmental influence assessment and that on approval, license, etc. has been controlled by the section of environmental influence assessment in the department of environment protection under the Directorate of Combined Project since this reorganization.

The Regional Environment Administrative Office (REA), a member of working group for mine environmental control of the study, has been reorganized as well, and rearranged under the control of the National Administrative Directorate and the Agency of National Environment and Forest in the Ministry of Environment, Forest and Water Administration, and its scope of work has been extended widely in combination with the environmental control and forest administration without specific increase of its number of personnel.

5.2.2 Countermeasures against Pollution, etc. due to Mining under MEFWA

Major policies of MEFWA in connection with mine activities are consisting of the monitoring control of operative mine, the control of environmental influence assessment (EIA) in mine development, the control of improvement plan on pollution due to mining, etc. On the other hand, the dormant or abandoned mine is being controlled by METE. The scope of control and administrative work for both ministries is clearly separated.

As to the monitoring of operative mines, there is a rule that the monitoring of mines shall be carried out by the mine operator four (4) times in a year in accordance with the environmental approval and the results of monitoring shall be reported to MEFWA. Also, as it is not a legal obligation to report the results of monitoring to METE, the situation and results of monitoring are unlikely to be known by METE. Therefore, METE is carrying out the control and administration of mines without knowing the management of environmental control due to operation of mine, and it can be said that the operation of mine and the environmental control have not been consolidated in their control and administration yet

so far.

5.2.3 Work of REA (Regional Environmental Administration)

Major works of REA in relation to mining industries are the receipt and/or acceptance of application on approval or license for environment management in mine development, EIA, monitoring, etc. including the receipt of reports on matters concerned as well as the work executing the policies of MEFWA.

5.3 Environmental Situation at Mine Sites

Administrative works for the operating and closed mines are carried out by the Ministry of Economy, Trade and Energy (METE). Environmental issues of mining are also managed by METE collaborated with MEFWA through the environmental management and monitoring works. However, communication between two the ministries seems to be insufficient.

The environmental management of the operating and closed mines and organization in charge of this are described below.

5.3.1 Environmental Administration System Related to the Mining

The organizations related to environmental management are METE, MEFWA and AKBN, as shown in Figure 5.3.1 and they are described below.

1) Environmental administration system of METE related to the mining

The “Directorate of Mining Industry” of the “General Directorate of Natural Resources Development Policies” of METE supervises mine management in general. Since the Directorate of Mining Industry of METE does not have organization in charge of environment, therefore METE is presently entrusting all environmental matters to “Directorate of Monitoring” of the Mining Department of AKBN.

Concerning the mine development, it is necessary for developer to obtain an “Environmental Permission” from MEFWA before approval of mining concession. EIA must be implemented before approval of environmental permission. According to the law on EIA, scope of the project must be described in EIA. Although it is specified in Appendix 2 as “Mining Industry” not included in Appendix 1, the item of metal mining industry is not found in Appendix 1. It seems that the item of metal mining industry is missed in the table by mistake. However, the environmental permission as well as EIA is required for all of the mining concessions, hence it should be no problem for METE and MEFWA to systematically control environmental procedure.

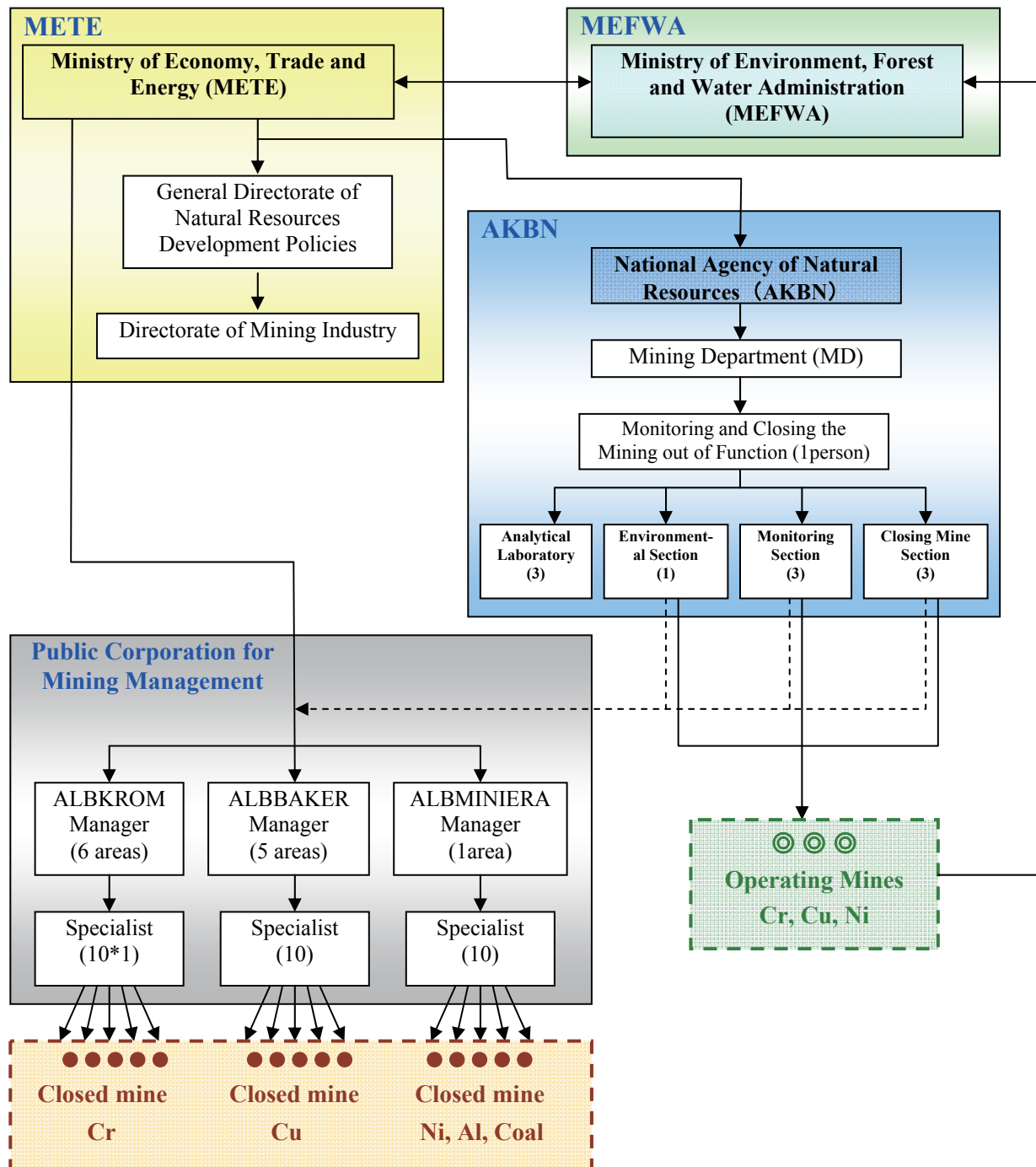
EIA is not required for small scale mining, certain type of minerals and mineral exploration, but it is necessary to submit “Environmental Management Plan” to METE and “Environmental Permission” must be obtained from MEFWA.

EIA includes a description of the contents of environmental consideration and monitoring plans. Implementation of those environmental plans can be checked by periodical environmental reports to MEFWA and METE/AKBN.

“Mining Plan” consists of plans of mining, techniques, financial, etc. and is submitted to METE/AKBN. However, the “Mining Plan” does not include environmental measures. The management items related to the environment and mine closure consist of the Monitoring Report, Post-mined Plan, Environmental Rehabilitation Cost Plan and Environmental Conservation Plan. The Monitoring Report and Environmental Rehabilitation Cost Plan are submitted to MEFWA from each mining company, and the Post-mined Plan and Environmental Conservation Plan are submitted to

METE/AKBN. However, there are not implementation cases of the Post-mined Plan, Environmental Rehabilitation Cost Plan and Environmental Conservation Plan after enactment of existing “Mining Law (revised in 2004)”.

Environmental Administration System Related to the Mining



*1 : Number of staff.

Figure 5.3.1 Environmental administration system of METE, AKBN and Public Corporation for Mining Management

The “Technical Committee Related to Mining” is established in AKBN, and the various reports and plans submitted from each mining company are examined in this committee. The committee members consist of representatives from each division of AKBN, including legal expert, economist and technical experts, but environmental expert and experts from outside are not included.

2) Environmental administration system of AKBN related to the mining

The section of “Monitoring and Closing the Mining out of Function” of AKBN consists of four sub-sections, including Environmental Sub-section, Monitoring Sub-section, Closed Mine Sub-section and Chemical Laboratory, and these sub-sections administer environmental management of operating and closed mines.

MEFWA sends the monitoring results, submitted four times per year from operating mines, to METE. Then, METE hands their data to AKBN for examination and compilation of analytical data. As such, the environmental reports are submitted from AKBN to MEFWA through METE.

3) Environmental monitoring for closed mines

The environmental monitoring of closed mines is carried out by the section of “Monitoring and Closing the Mining out of Function” of AKBN. The monitoring is done four times per year same as MEFWA’s monitoring works. Chemical analysis is conducted in the Sub-section of Chemical Laboratory, equipped with analytical instruments of physical measurements, spectrometry, atomic absorption spectrophotometer, etc. The water samples of monitoring, taken by AKBN, are analyzed in the laboratory.

Analytical parameters for monitoring generally consist of four components, such as pH, Cu, Fe and S. These parameters are not enough for understanding the environmental situation of mine sites, because harmful heavy metals such as Cd, Cr⁶⁺, Hg, Pb, As, etc. are not included.

4) Public Corporation for Mining Management (tentative name)

After 1990s most of the mines were closed, and the management of these closed mines is enforced by “Public Corporation for Mining Management”, established and funded by subsidy from METE. The public corporation consists of three corporate, namely “ALBKROM”, “ALBBAKER” and “ALBMINIERA”, working for closed mines in whole area of Albania.

The public corporation submits safety measure plans and cost estimations to METE every year and funds for appropriate measures are prepared if they are approved. The main task of the public corporation consists of environment, safety, reforestation, etc. for management of mining facilities, however present work is limited to maintain safety of closed mines such as safety of galleries, caves, etc because of limited budget.

The environmental management of closed mine by the Public Corporation for Mining Management seem to be the best way, for this, it is necessary for METE to increase budget for funding the corporation to bring up experts of environmental management of closed mines and to install necessary instruments and facilities for the environmental management.

5.3.2 Environmental Management System by the “New Mining Law (2010)”

The new mining law, adopted in July 2010, included provision on mine closure and mine rehabilitation plans. Detailed secondary regulations are being developed within the framework of the New Mining Laws.

1) Comparison of environmental consideration between the previous “Mining Law” and the “New Mining Law”

According to the existing “Mining Law”, it is necessary for a mining developer to obtain an “Environmental Permission” including EIA from MEFWA before approval of mining right. EIA includes the content of environmental consideration and monitoring, and then the Monitoring Report, Post-mined Plan, Environmental Rehabilitation Cost Plan and Environmental Conservation Plan are submitted as obligations during mine development.

According the “New Mining Law”, EIA and monitoring requirements are basically same as the existing “Mining Law”. However, a Mine Closure Plan, Environmental Rehabilitation Cost Plan and Environmental Conservation Plan are required to be integrated to the “Environmental Rehabilitation and Implementation Plan” and “Environmental Rehabilitation Fund System”. The “Environmental Rehabilitation and Implementation Plan” is submitted to METE at the same time as obtaining the mining right and should be approved by METE. The mining developer has an obligation to submit the yearly “Environmental Rehabilitation Report” to METE/AKBN after the start of mining and “Final Environmental Rehabilitation Plan” before mine closure.

The “Environmental Rehabilitation Fund System” is a deposit money system for the environmental rehabilitation fund in bank. There are two cases for implementation of environmental measures and conservation, i.e. one case is that environmental rehabilitation and monitoring work after mine closure are completely implemented by the mining company; the other case is that environmental rehabilitation and monitoring works after mine closure are implemented by METE/AKBN using deposit money of rehabilitation fund.

The procedure of environmental consideration through the mine life from mineral exploration stage to mine closure according to the “New Mining Law” is shown in Figure 5.3.2.

2) On the “Environmental Rehabilitation and Implementation Plan”

On the “Environmental Rehabilitation and Implementation Plan” of the New Mining Law, conceptual comments formulating a policy for the sustainable mining development and mine closure are shown as below.

- Conformable contents between EIA and “Environmental Rehabilitation and Implementation Plan”: The directions of environmental consideration between environmental contents of EIA during the mine development and the “Environmental Rehabilitation and Implementation Plan” for the mine development should be consistent. The “Environmental Rehabilitation and Implementation Plan” is planned and submitted after EIA, therefore the environmental contents of the “Environmental Rehabilitation and Implementation Plan” should be adequately examined at the time of EIA study. These environmental contents are thought to be important guarantee for the environmental conservation.
- Environmental Management System: The operation management and environmental management of mine have are completely linked, hence operation of a mine should be conducted simultaneously together with environmental management. Therefore, the environmental inspection inside of the mine area should be conducted together with the inspection of mine operation by METE/AKBN at the same time, and then regional environment outside of mine area should be managed by MEFWA.
- Environmental Monitoring Management: Monitoring is one of important tools for environmental management. The Sampling area of monitoring includes inside and surroundings of mine area, i.e. monitoring result of regional area surrounding mine should be managed by MEFWA, and monitoring result of inside of mine area should be managed by METE/AKBN. As the monitoring results of both areas should be concurrently informed

to MEFWA and METE/AKBN, concurrent environmental management of both offices is essential.

- Expanded Technical Committee: Since, presently, technical committee examining environmental management has not been established yet, it is impossible to fully examine the monitoring results as technical management. Therefore, it is necessary to establish the “Expanded Technical Committee”, including members of relevant ministries, agencies, university, etc. aiming at sustainable environmental management of mine. For this purpose, particularly, a strong environmental inspection system is required under the agreement between MEFWA and METE.

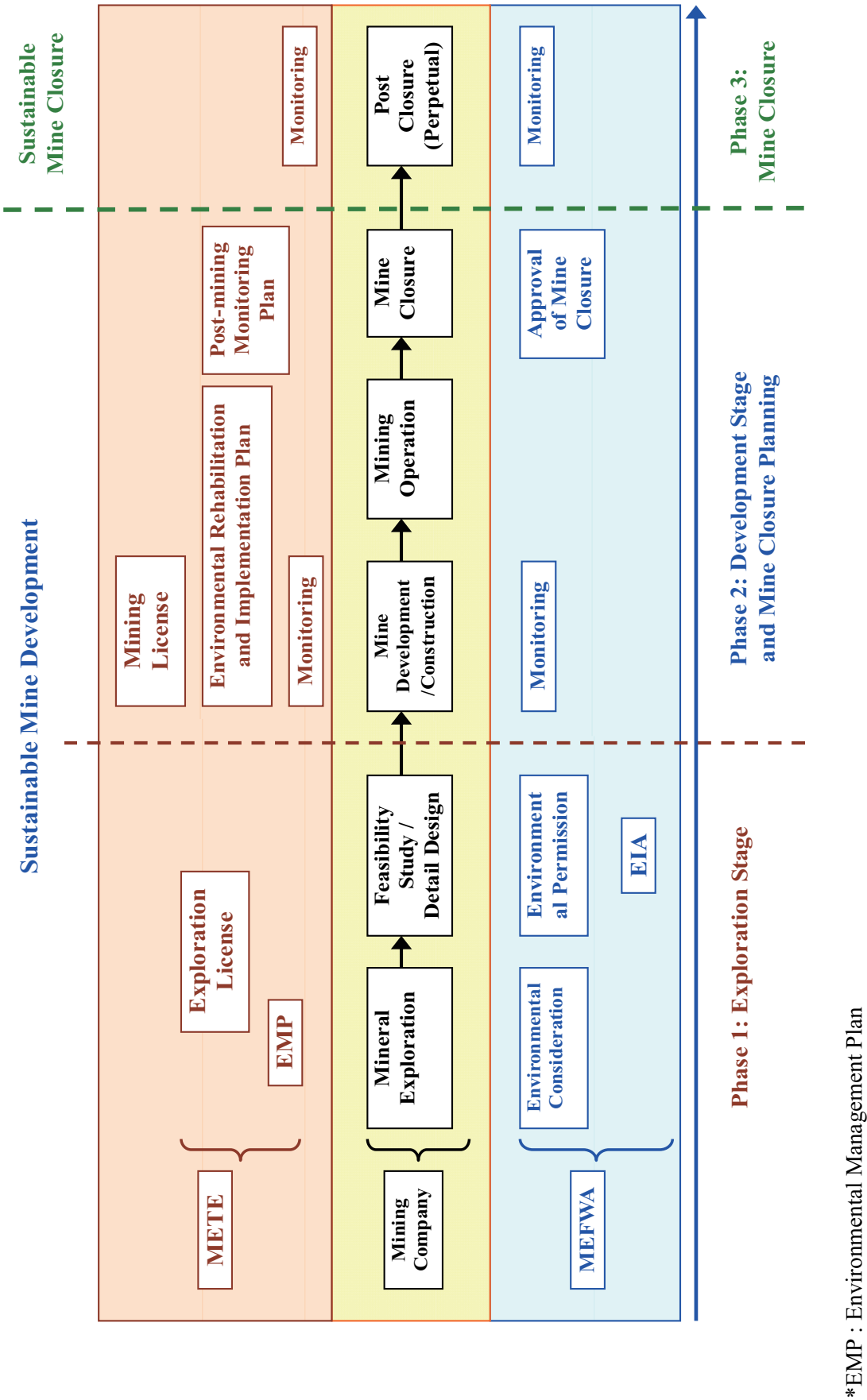


Figure 5.3.2 Procedure of environmental consideration through mine life

5.4 Action Program for the Environmental Consideration

Various issues were discussed with Albanian experts in the Working Group on the preparation of the action program for the environmental and social considerations for sustainable development of mining and the discussion on “Environmental Rehabilitation and Implementation Plan” of the “New Mining Law” was conducted.

5.4.1 Environmental Issues of Sustainable Development of Mining

The environmental issues for sustainable development in the mining sector are given below.

1) Environmental Issue - 1 : Awareness on Mine Pollution

Improvement of the awareness on mine pollution is a basic concept for the development of the country and is deemed to be an index for the sustainable development of safe and healthy lives of the Albanian population. Particularly, as can be seen in Japanese case, it is necessary to understand the fact that the improvement of mine pollution requires considerable burdens of many peoples, manpower, technologies, funds and time, and if mine pollution results in disease, then there are serious impact.

2) Environmental Issue - 2 : Environment Management System

Concerning the mining management system of METE, considering the regulation that the mine developer should obtain an “Environmental Permission” from MEFWA before approval of mining right from METE, the management system of the environmental consideration of METE itself seems to be insufficient. Then, most of the environmental works are carried out by AKBN. It is, therefore, necessary for METE to set up a post in charge of general environmental management for environmental consideration and inspection. In addition, establishment of the “Expanded Technical Committee” for a technical assistant organization consisting of members of relevant ministries and agencies, university, etc., is recommended as shown in Figure 5.4.1.

3) Environmental Issue - 3 : Environmental Monitoring

Concerning the monitoring system, the environmental inspection inside of the mine area should be managed by METE/AKBN and regional environment outside of the mine area should be managed by MEFWA. As the monitoring results of both areas should be concurrently informed to MEFWA and METE/AKBN, concurrent environmental management of both offices is possible.

4) Environmental Issue - 4 : Investigation on the Implementation of Action Plans in the EIAs

Environmental Impact Assessment (EIA) is carried out for the environmental and social considerations at the initial stage of a project, and there may be chances of amendments or changes in a case of change of plan or influence from the ones that were expected at the initial stage according to the progress of project. The system carrying out “Investigation of EIA” at the interval of every five years is applied in many cases in accordance with the recognition that the influence not expected at the initial stage is normally probable. Therefore, it would be proposed to introduce such an Investigation of EIA in every five years interval.

5) Environmental Issue - 5 : Understanding on Potential of Mine Pollution and its Countermeasures

Although the potential for mine pollution in Albania seems to be relatively high, the systematic monitoring based on the accurate chemical analytical data seems to be insufficient. It is necessary to carry out more detailed inventory survey in whole area of the country based on the accurate chemical

analysis, to evaluate the potential of mine pollution and to examine the countermeasures based on the environmental risk analysis.

5.4.2 Comments on “Environmental Rehabilitation and Implementation Plan” to the “New Mining Law”

On the “Environmental Rehabilitation and Implementation Plan” of the “New Mining Law”, conceptual comments formulating a policy for the sustainable development of mining and mine closure are described below.

- Conformance between EIA and “Environmental Rehabilitation and Implementation Plan”: The directions of environmental consideration between environmental contents of EIA during the mine development and the “Environmental Rehabilitation and Implementation Plan” for the mine development should be consistent. The “Environmental Rehabilitation and Implementation Plan” is planned and submitted after EIA, therefore the environmental contents of the “Environmental Rehabilitation and Implementation Plan” should be adequately examined at the time of EIA study. These environmental contents are thought to be important guarantee for the environmental conservation.

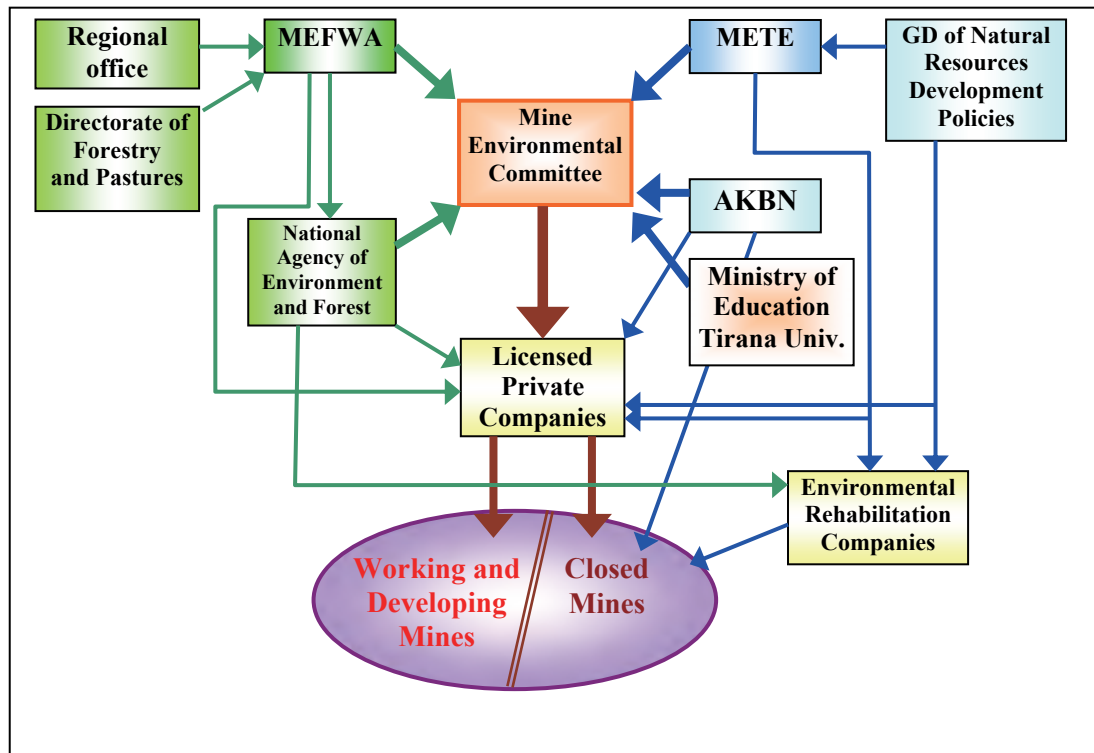


Figure 5.4.1 System and organization of mine environment management

- Environmental Management System: The operation management and environmental management of mine are completely linked, hence operation of a mine should be conducted simultaneously together with environmental management. Therefore, the environmental inspection inside of the mine area should be conducted together with the inspection of mine operation by METE/AKBN at the same time, and then regional environment outside of mine area should be managed by MEFWA.
- Environmental Monitoring Management: Monitoring is one of important tools for environmental management. The sampling area of monitoring includes inside and

surroundings of mine area, i.e. monitoring result of regional area surrounding mine should be managed by MEFWA, and monitoring result of inside of mine area should be managed by METE/AKBN. As the monitoring results of both areas should be concurrently informed to MEFWA and METE/AKBN, concurrent environmental management of both offices is essential.

- Expanded Technical Committee: Since, presently, technical committee examining environmental management has not been established yet, it is impossible to fully examine the monitoring results as technical management. Therefore, it is necessary to establish the “Expanded Technical Committee”, including members of relevant ministries, agencies, university, etc. aiming at sustainable environmental management of mine. For this purpose, particularly, a strong environmental inspection system is required under the agreement between MEFWA and METE.

CHAPTER 6 ENHANCED GIS AND INFORMATION SERVICE

The aim of this chapter is to describe a concept design of a GIS database for the mining sector, and a recommended strategy for the implementation of GIS.

6.1 Basic Concept of the GIS Database

The basic concept of the GIS database, in line with the aim of this study, the state of GIS utilization and available spatial information, was proposed at working group meetings and workshops during the study.

6.1.1 Purpose of Developing the Database

The following two points were proposed in line with the aim of this study as the purpose of developing a GIS database. Basic approval was gained on these, so the basic concept of the GIS database was formulated. Its purpose is:

- To allow mining industry investors access to mineral resource and mining information, and
- To ensure related agencies can function effectively.

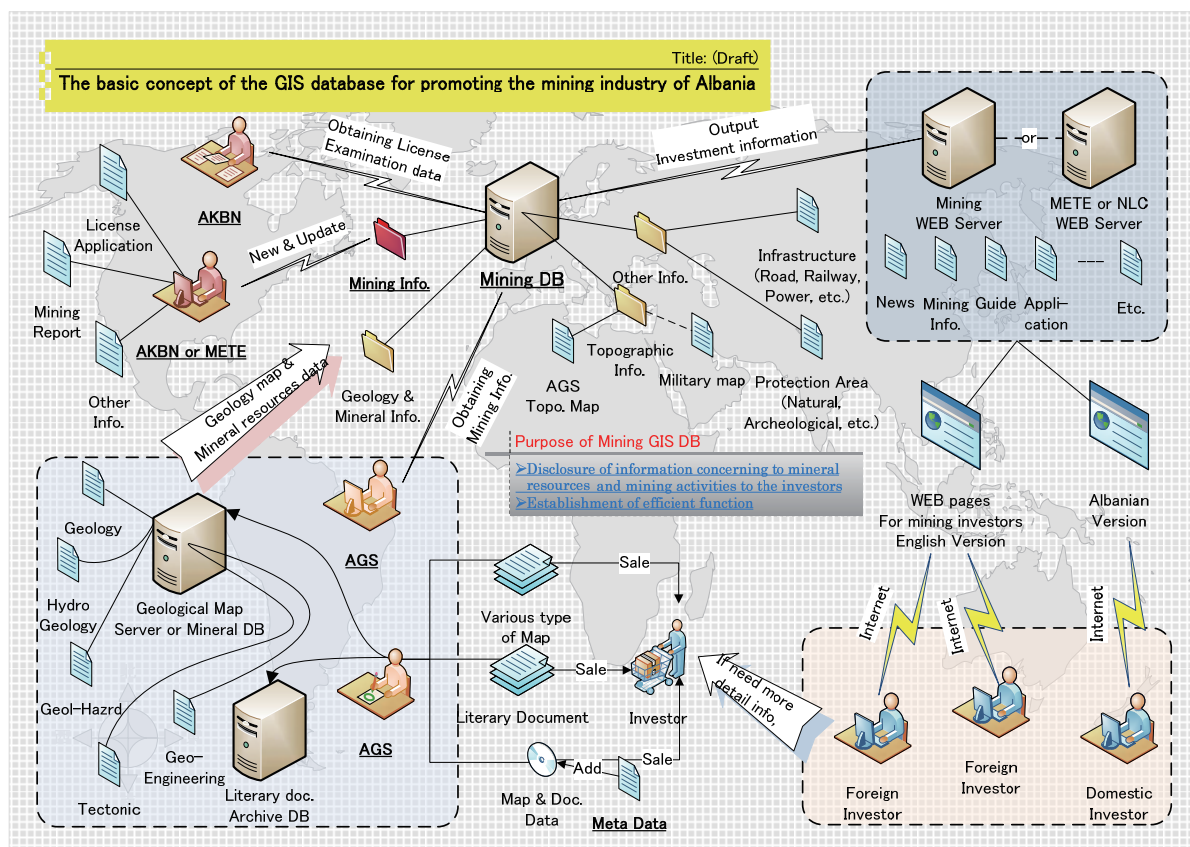


Figure 6.1.1 Basic concept of the GIS database

Development of a mining database comes under the scope of this study. This study's database is to include mining activity, and topographic and geological map data; the mining database will **not** include detailed geological information. The reason being that AGS has already started developing its own database; and so, it is assumed there that an mechanism will be further developed for investors wishing to acquire detailed geological information from AGS.

The right side of the above basic concept figure 6.1.1 is for external users such as foreign investors, while the left side is for internal users such as METE, AKBN and AGS.

6.1.2 System Development Prerequisites

The development of a GIS database is an output of this study; however, when taking into account matters such as the counterpart agencies' utilization of GIS, hardware set up including network environment, and GIS capable human resources; it has been necessary to support:

- development of a system (including hardware) which incorporates the existing system;
- development of a framework for operation and maintenance of the system;
- development of the system (including system functions and a database); and where necessary support tendering and documentation;
- basic training on GIS software, and
- human development for system management (outsourcing also considered).

Most personnel have a background in geology or mining, but not one has an education in GIS or IT. For the establishment, utilization and maintenance of GIS and IT after this study is over, human resources need to be developed urgently in counterpart agencies as leaders in these fields and as core GIS technicians. Knowledge on operating a system on an organizational level that many users can share and use together is needed particularly in METE and AKBN, where system operation is mainly on an individual level.

6.2 Conceptual Design of the GIS Database

The conceptual design of the GIS database was formulated on the basis of the existing systems developed by the counterpart organizations, METE (the Ministry of Economy, Trade and Energy), AKBN (the National Agency of Natural Resources) and AGS (the Albanian Geological Survey), and information obtained from interviews conducted at the Working Group Meetings.

Since the following two measures had been proposed and approved, in principle, as the purpose of developing the database, they were used as the basis for formulating the conceptual design.

- To disclose information on mineral resources and mining activities to investors in mining; and
- To establish a mechanism for efficient service provision by the relevant organizations.

After the Albanian counterparts reviewed this conceptual design document by the next survey, the design document was revised.

6.2.1 Composition of the Conceptual Design Document

The following were selected as the components of the Conceptual Design Document so that the C/P organizations will be able to use them in detailed design and programming.

- a. Outline of the System
 - Background of the Survey
 - Outline of the GIS Mining Database
- b. Components of the Project
 - Components of Database Development
 - Data Flow Diagram
- c. Functional Requirements
 - Outline of the Functions
 - Display Screen Design
 - Form Design
 - Thematic Map Design
- d. Database Design
 - Map Information
 - Attribute Information

- Code Tables
- Entity Relation Diagrams
- e. System Composition
- f. System Introduction Schedule
- g. Miscellaneous

In the beginning, the possibility of focusing only on database design for detailed data models was considered, since the “Mineral Resource GIS Database Design” was one of the Project outputs. However, since the C/P organizations intend to develop a GIS-based system, it was decided to include the specifications required by the system in the Conceptual Design Document with the intention of facilitating transition to the subsequent process of detailed design and programming.

6.2.2 Points to Note in the Conceptual Design

The outcomes of the Working Group Meetings during the second and third Field Surveys, the interviews at the individual organizations and the discussions among the Survey Team were used to select the types of work to be systematized and included in the database in the GIS Mining Database development as shown below:

Works to be included in the database	Competent authorities
➤ License management	Responsibility to be transferred from METE to AKBN
➤ Monitoring	AKBN
➤ Mining statistics	METE and AKBN
➤ Mineral resources	AGS and AKBN
➤ Documentary information on geological surveys	AGS
➤ Development of an investment database	Responsibility to be transferred from METE to AKBN

The selection of works to be included in the database made AKBN, which is responsible for the majority of the works, the main user of the database and gave METE and AGS the role of supporting AKBN.

Points to note in the Conceptual Design are as follows:

1) Display Screen Design

(1) Display languages

Input data are expected to be converted into data for external information disclosure (or translated into English) semi-automatically. Code tables containing item names both in Albanian and English described below will be used to produce such data.

At the same time, since the number of input items for each entity in the database is small, the entered data will be displayed both in Albanian and English wherever possible to allow users to verify the input data.

(2) Grouping

The input items for the mineral resource data in the existing database are grouped on the display screen. The data input operation will be simplified by making it a rule to display related input items in groups on the screen.

2) Form Design

The existing database does not have a form output function. However, since such a function is essential for actual work and verification of input data, a function to print out the main data on individual forms and the code tables on single forms as a list will be developed.

3) Map Information

(1) Topographic maps

It is still unclear whether up-to-date topographic map data from the Military Topographic Institute will be available or not. Therefore, topographic map data on a scale of 1:200,000 (produced by editing 1:100,000-scale topographic maps) and 1:25,000 owned by AGS will be used. However, should the up-to-date topographic map data be available, replacement of the AGS-owned data with the up-to-date data will be considered.

Meanwhile, in order to utilize the existing data, the coordinate system established using the Pulkovo Geodetic System and the Gauss–Krüger Coordinate System, which are used in Albania, will be used. Use of the World Geodetic System will have to be considered in future. However, since development of the database is the urgent issue at the moment, the switchover of the geodetic system will be considered once the database development has been completed.

(2) Geological maps

Although AGS is digitizing 1:25,000-scale geological maps, such detailed data will not be required for the work at AKBN, which will be the main user of the database, or as data for external information disclosure. Therefore, only geological map information on a scale of 1:200,000 will be used in the database.

(3) Infrastructure

Information on infrastructure is essential for investors in the mining industry. However, as mentioned in the preceding section, the available old topographic maps cannot serve as the basis of infrastructure information. Therefore, only the minimum required information on electricity, roads, railways, the airport, and ports and harbours will be produced anew.

- a. Electricity Power plants, substations and power transmission lines
- b. Roads Limited to expressways and national highways
- c. Railways Limited to passenger and freight lines
- d. Airport Limited to one airport
- e. Ports and Harbours Limited to four ports and harbours

The following show examples of the infrastructure information produced from the existing data.

(4) Protected zone maps

Law No. 8906 Dated 6.6.2002 on Protected Zones protects certain areas from development. The purpose of the law is to establish natural reserves in which eco-system biodiversity, natural habitats, species, natural landscapes and protected zones are conserved.

The information on protected zones was included in the map information in the database as a component of external information disclosure to investors because it concerns mining development. Law No. 8906 classifies protected zones into the following six types:

- a. Strict Natural Reserve
- b. National Park
- c. Nature Monument
- d. Nature Park
- e. Protected Landscape
- f. Management Resource Area

The level of protection in each of the six types of protected zone is based on the classifications of the IUCN (International Union for Conservation of Nature).

(5) Digital Orthophotos (Optional)

Use of digital orthophotos will be considered as substitutes for the outdated topographic map information in which detailed information is not represented (as the 1:200,000-scale topographic maps were produced by editing the 1:100,000-scale topographic maps). Their use is assumed in the approval of license applications and monitoring of mining activities. However, digital orthophoto data are large in size. Coordinate conversion will be required because the coordinate system of digital orthophotos is the World Geodetic System. For these reasons, the possibility of the use of digital ortho-photographic images in developing the database will be investigated further.

4) Various Data

(1) Mining licenses

In the existing database, the primary keys are managed as internally stored sequential numbers. Such numbers are not displayed on the screen. The same system can be used if the issuance of licenses only is to be recorded. However, in the case of managing the licensing process from the application stage, defining primary keys with application numbers will facilitate subsequent procedures. For this reason, the license application numbers were used as the primary keys in the database design.

In the existing license database, coordinate data for all areas of mining activities included in an application are stored in a single row allocated to a single license number. The maximum number of coordinate data which can be stored in one record is 22 in the existing database. It is assumed that, when the number of coordinate data exceeds this maximum number, the number of field items within the record is increased to store the whole data. In order to eliminate the need to change the database structure frequently, a record was designed without setting a limit on the number of coordinate data in the new database.

(2) Information on the work of AKBN

As AKBN has never developed a database, the whole database will have to be designed from the beginning. The types of information to be included in the database are:

- a. Basic information on mining activities;
- b. Records of inspection and supervision at mining centres; and
- c. Information on temporarily and permanently abandoned mines.

However, as AKBN failed to provide sufficient information, items generally considered necessary for database design were identified and used in the design. AKBN is expected to review and verify the details of the design.

(3) Information on engineers at AKBN

This information needs to be linked to the information on the above-mentioned work of AKBN when the latter is made into a database. This type of information is not found in the existing database.

This database will have a simple design not including detailed personal or career information. Although it is possible to include such detailed information in the database, inclusion of such information might overstretch the scope of the database. Therefore, it was decided that only names, designations and affiliations, and not detailed information, would be included in the database.

(4) Mining statistics

Since the design of the existing database only allows entry of yearly production for a single year, it is assumed that the database structure will have to be modified every year. In addition, mining statistics require other data items such as operators and volume of shipments. For these reasons, the mining statistics were designed so that such data can be entered into the database.

Article 43 Clause 3 of the new Mining Law (July 2010) provides the competent authority with the obligation to submit a mining statistics report every six months. To comply with this obligation, flags indicating the whole, the first half and the second half of the year were added to part of the key in the mining statistics.

(5) Mineral resource data

The mineral resource database in the existing system consists of two major parts, basic data and chemical analysis data. While the items in the basic data are the same for all minerals, those in the chemical analysis data vary significantly. Therefore, chemical analysis data are stored in the database using a display screen and entity prepared separately for each of the various groups of minerals. As a consequence, the existing database has more than 30 screen displays and entities.

The existence of a large number of common items led to the conclusion that it would be more effective to adopt an efficiency-oriented design for ease of programming and system maintenance. However, it will be necessary to control data input by programming when the need to seek higher data accuracy arises.

Input items were defined for each type of mineral to ensure the accuracy of the data input. However, there are more than 180 input items for chemical analysis in the existing database. Therefore, reduction in the number of the input items is recommended when defining the actual input items in the database design.

In addition, encoding seems appropriate for some of the input items. However, since consolidation of the input items has not been implemented and there is a possibility of the entities in the database becoming complicated due to consolidation, such encoding is not included in the design.

(6) Index data of survey document on geological surveys

Development of the existing index data of survey document search database has almost been completed by AGS. The data in this database are expected to be extremely useful in searching documentary geological information in Albania. Therefore, the database is being developed under the assumption that it will be made available to the general public as part of the information to promote investment in mining. However, the database has problems. For example, some of the data are written in Albanian. The existence of misspelled words and the use of different synonyms resulting from the absence of encoding are also problematic.

A database including a function to present the major items in English was designed on the assumption that the database will be made available to the general public.

5) Adoption of code tables

Most of the existing database is not encoded. However, it allows users to select input data from tables of the existing data input for some of the data items. In this conceptual database design, encoding was adopted wherever possible for the following reasons:

- Encoding will enable the system to display data both in Albanian and English simultaneously.
- Misspelled words and use of different synonyms will have to be eliminated in order to maintain the accuracy of the data.

- Criteria for data input will have to be established assuming use of the database by multiple users.

However, it is considered difficult to establish universal standards for geological data input because of ever-changing evaluation criteria and differences in opinion. Therefore, while encoding will be considered wherever possible, conventional free-format data input will be maintained for items on which differences in opinion persist.

Principal points to note in preparing code tables are as follows:

(1) Code table for the types of licenses

The new Mining Law (drafted in 2009) classifies mining activities into the following four types,

- a. Prospecting,
- b. Exploration,
- c. Exploitation,
- d. Combination of points as in letters a”, “b” and “c”
(Combination of “a,” “b” and “c,” in practice, “from Prospecting to Exploitation)

and provides granting of licenses for each of the four types of activities. Therefore, a code table will be established in accordance with this classification.

(2) Code table for the status of license applications

As part of its investment promotion activities, the government of Albania has established a National Licensing Centre with the aim of providing a one-stop-service for approval/permission for business activities. Work associated with evaluation of licence applications for mining will be transferred from METE to AKBN because technical knowledge of mining is required for the evaluation. AKBN is preparing for the transfer.

The database equipped with a license management function will play an essential role in sharing information on the evaluation of license applications.

(3) Code table for the types and names of minerals

The new Mining Law (drafted in 2009) defines more than 150 types of minerals classified into seven groups. It was decided that the code tables used in the database design be defined in accordance with the definitions of the law. As a consequence, the existing data on mineral resources will have to be edited and sorted in accordance with the newly defined codes.

(4) Code table for mineral resource data

Encoding of the geological components in the mineral resource data, *i.e.* geological structures, rock complexes, geological ages, pedogenic processes and occurrences, with the existing data input will be considered.

(5) Code table for the administrative units (local governments)

This table is used for input of data on licenses, mineral resources and index data of survey document. Data at regional level and district level coexist in the existing database. To eliminate this confusion, the table will be designed so that data at the provincial and district levels can be entered into the database separately.

6.2.3 Points to Note when Converting the Existing Data and Producing New Data

It is assumed that the existing data owned by METE, AGS and other organizations will be utilized efficiently in developing the Mining GIS Database, instead of developing a large number of new data. However, since it is impossible to achieve the purpose of data production by simply converting the

existing data, data processing will be required. The points to note in data conversion and production are described in the following:

1) Map Information

(1) Licenses (Mining zone maps)

In order to achieve consistency between map information and attribute information, the coordinate data stored in the license information in the existing database will be used to reproduce license polygons.

(2) Topographic maps and geological maps

The use of the data available from METE and AGS will eliminate the need for large-scale data processing.

(3) Infrastructure and protected zone maps

While this type of map information is not available from METE, AKBN or AGS, it is available from the Ministries of Public Works and Environment. The data obtained from these ministries will be used either for data processing or for new data input.

(4) Digital orthophotos (optional)

Since digital ortho-photographic images are based on the World Geodetic System, the use of the data in the database will require conversion of the coordinate system and confirmation of the consistency with other data.

2) Various data

(1) Sorting and revising of the existing data

Items to be encoded will be sorted and unnecessary items will be removed. Misspelled words and use of different synonyms will be identified and, if necessary, appropriate measures will be taken to deal with such problems.

(2) Definition of code tables

Code tables will be prepared after the existing data have been sorted as mentioned in the preceding paragraph.

(3) Processing of the existing data

The data on mining licenses, mineral resources and the index data of survey documents will be processed.

The prepared code tables will be used in processing the existing data. An encoded input will be entered for an appropriate item.

There may be cases in which the existing mineral resource data, local government data, etc. have not been fully encoded or are not consistent with the new encoding system. In such cases, the content of the data will have to be analyzed and processed accordingly.

Translation of data into English will also be required in order to disclose information to the general public. In particular, because document titles in the document index are all in Albanian, they will have to be translated into English before being entered into the database.

6.3 Establishment of Policies for Operation and Management of the GIS Database

After this project and the mining GIS database design are finished, it will be time to move into the database development phase. Then, the Albanian counterparts will take over the operation and update

of the mining GIS database on its own. Therefore, some recommendations will be given on policies for the operation and management of the database so that it is used effectively.

6.3.1 Operation and Management of the GIS Database

The main user of the mining GIS database, as mentioned in *Chapter 6 System Installation* of the database design specifications, will be AKBN. At the same time, the operation and management of the system is also AKBN's responsibility. This is also because it is AKBN's legal responsibility to promote mining in Albania, and because it is the agency for mining licenses and for collecting information regarding mining activities. Namely, it can be said that AKBN, by rights, must play a major role regarding the mining GIS database.

Therefore, there is basically no need for METE and AGS to assign new personnel for the mining GIS database. Both agencies are expected to be users of the database; however, their position is essentially to support the development of the database.

AKBN on the other hand, has so far not undertaken sufficient measures or policy for organizational system utilization. As such, it is necessary to consider developing a system whereby IT and GIS are used on an organizational level. The following roles, for instance, can be envisaged as part of an IT and GIS support system considering AKBN's size:

- (1) System and database administration
 - Overall system and database administration
 - Coordination with internal and external organizations relevant to the system
- (2) System and database support (in charge of hardware)
 - Hardware and network administration
 - Server and network monitoring
 - Security measures
 - User management
 - Data and database backup
 - Data and database input-output management
 - Management and procurement of IT equipment consumables
 - Management and procurement of IT equipment
- (3) System and database support (in charge of software)
 - Software operation support
 - Software operation user training (including CAD and GIS software)
 - Installing and updating software
 - Maintenance of database codes and tables

At the same time as assigning personnel to these abovementioned roles, it is also necessary to consider measures to improve the computer literacy of the technicians and employees who will be the users of the mining database. Some possible examples:

- Allocate computers depending what the position encompasses. One computer each would be ideal, however, computer allocation should be considered with regards to budgetary constraints so as to not impede their work.
- Establish an IT and GIS user support system and aim to respond promptly.
- Decide on a plan for constant IT training and set it in motion. Consider making a training manual specifically for AKBN.
- Promote the use of CAD and GIS software in regular work such as thematic mapping. To do this, decide on, and implement a plan for constant CAD and GIS training.

The following figure is a schematic of the operation of the mining GIS database.

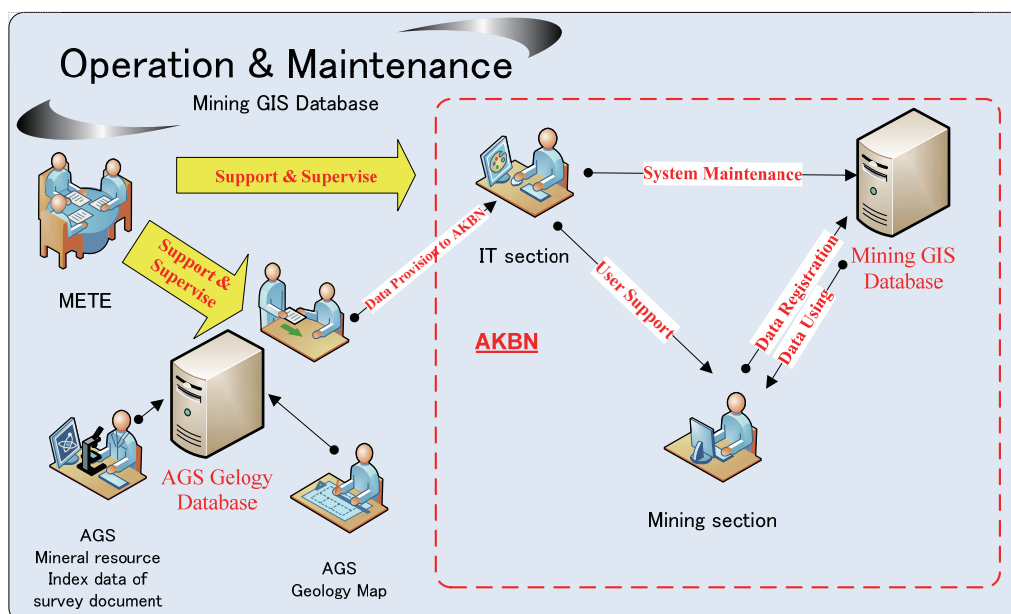


Figure 6.3.1 Schematic of the mining GIS database operation

Further, in order to introduce the mining GIS system it is necessary to strengthen the organization including establishing an IT section, as shown in the following figure, and also to improve work methods within the agency. The development of a GIS system alone can be expected to cause problems to the actual operation of the GIS.

By making the GIS system and establishing a system so it can be operated, GIS can contribute to strengthening AKBN organizationally and its technical capacity. And consequently, it is also expected to lead to the promotion of mining in Albania.

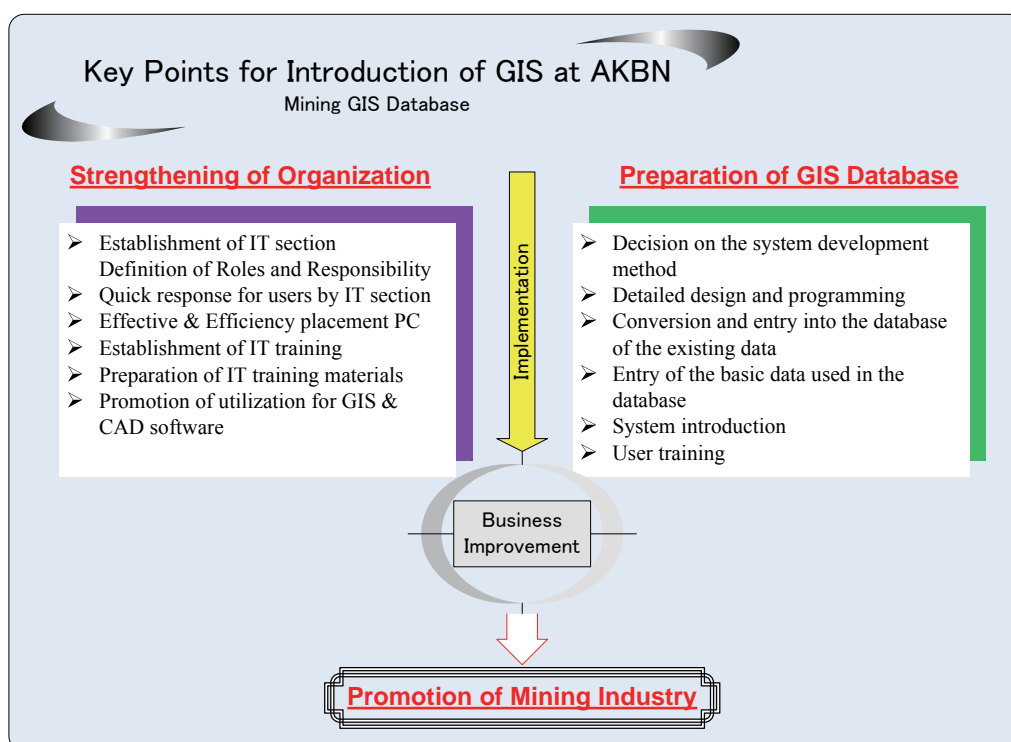


Figure 6.3.2 Action plan for introduction of mining GIS database

6.4 Recommendation to the Design, Operation and Management of the GIS Database

The recommendation to the design, operation and management of the GIS database is as follows;

- It is important that the development of GIS is implemented on a step-by-step basis. There are many examples in countries where major GIS systems that are over-detailed and complicated have been designed, but implementation has not been successful because of the need for a major increase in capacity and also the need for much expensive computer hardware.
- The next step will be the detailed design of the GIS database, selection of software and customisation of the software to the needs of METE and its agencies.
- Some training of Albanian personnel in GIS has been carried out in Albania and in Japan during the JICA project. However, the most important aspect of a future GIS database is to strengthen capacity in AGS and AKBN for its implementation and use. There are currently major capacity shortfalls in terms of the number of staff and the skills of the staff for GIS database management. It will be important to recruit staff and to implement detailed training programmes on GIS.
- It is important that the data and information are efficiently shared amongst institutions for their use, and that an efficient mechanism is available for potential private sector investors to easily obtain data and information. It is important for information to be clear about the data reliability.
- Responsibilities for data management and future GIS need to be clearly defined. In particular, AGS and AKBN both receive important data, from survey work, company reports, etc. Responsibilities for AGS and AKBN must be clearly defined in the future implementation of GIS so that the two agencies co-operate on improved data management and availability.
- It is recommended that METE discuss potential funding opportunities with international donor organisations for a Technical Assistance (TA) project for the development of the detailed design for the GIS database, the customisation of the software, advice on responsibilities, development of data management procedures and detailed training of personnel.

CHAPTER 7 ACTION PROGRAM FOR COMMON ISSUE OF MINING SECTOR

Overview

The overall direction of the Mining Strategy (2005) in Albania is positive with respect to institutional, legal and organisational issues. At present, there are minimal financial resources available in the public sector in Albania for the development of the mining sector. Public funding is only available for some activities such as geological mapping, initial assessments of mineral resources, organisational processes (e.g. licensing), monitoring, etc. Private investment money is needed for the expensive activities like exploration, mine development, ongoing environmental protection, etc. Therefore, the core direction of the Mining Strategy to attract private sector investment is very applicable.

Activities taken by the Albanian Government since that time have been helping to encourage private sector investment, such as development of the new Mining Law and the set up of the National Licensing Centre.

The New Mining Law, adopted in July 2010, will be very important in attracting private sector investment because it will bring a stable legal framework, which is one of the main requirements for private companies when they are considering the risks of their potential investments.

The strategic direction of tendering and awarding concession contracts is appropriate because proper competition will lead to the appointment of the most credible and experienced companies and provide value-for-money. In particular, the development of a 3-year action plan, showing the future concession contracts that will be tendered, will encourage private sector interest as this will give companies time to plan investments. For those potential mining areas for which there is not enough geological information available to be confident of development, and therefore they are excluded from the 3-year action plan, the continuation of awarding exploration licences on a first come first served basis is appropriate.

The set up of the National Licensing Centre as a one-stop service for licensing is also an important development, as this should provide a quicker, more transparent, and more understandable licensing process.

Another important development is that the Government of Albania is working towards adoption of EITI, which will strengthen the auditing of financial aspects and accountability in the mining sector.

Introduction to the Action Program

This chapter provides a proposed action programme related to institutional, organisational and legal issues. For the sustainable development and strengthening of the mining sector in Albania, it will be important to strengthen aspects related to the main components (or building blocks) of the institutional, organisational and legal framework (Figure 7.1).

The key issues that need to be addressed by the Action Programme, for each of these components, and the proposed actions, are identified in the following sections below.

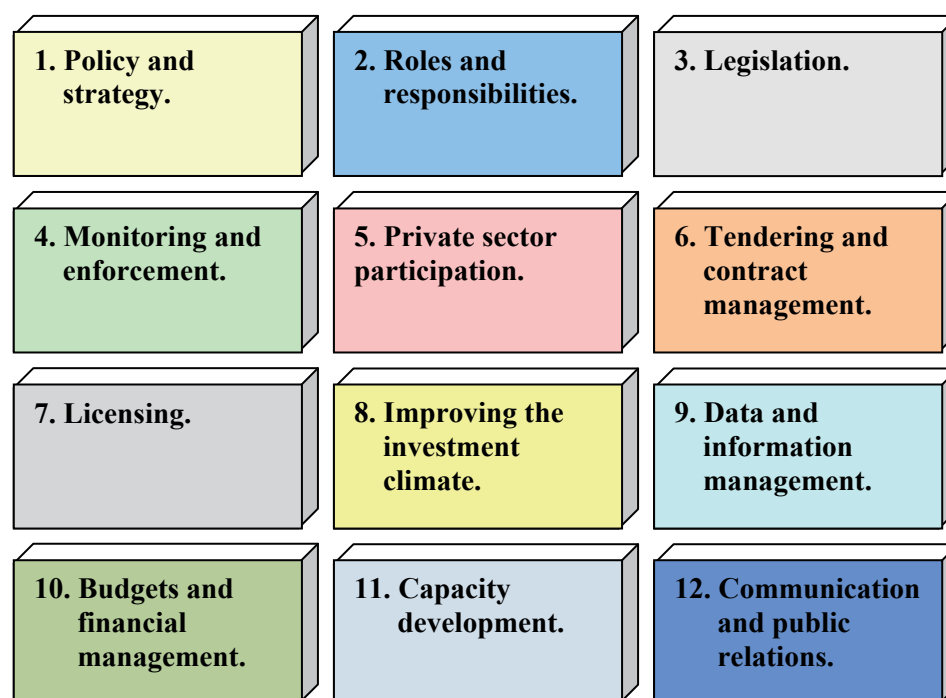


Figure 7.1 Main components (building blocks) of the institutional, organisational and legal framework in the mining sector

7.1 Action Programme - Mining Policy and Strategy

7.1.1 Key Issues - Mining Policy and Strategy

The key issues in Albania for strengthening the framework for the implementation of an agreed mining strategy are:

- The need for clarification of the priority adopted strategy for the mining sector.
- The need for an Action Plan to back up the principles in the strategies.
- The need for clarification of the link between the New Mining Law and the Mining Strategy.
- The need for a formal mechanism for implementation of the Mining Strategy.
- The need for clear targets associated with the Mining Strategy.

a. The need for clarification of the priority adopted strategy for the mining sector

The core principles in the programmes and strategies outlined above are relevant and applicable to the sustainable development of the mining sector, for example the principles on capacity development, strengthening legislation and alignment with EU directives, taking measures to attract foreign investment, encouraging private sector participation, improving environmental protection, etc. However, the fact that there are currently several overlapping strategies that are relevant to the mining sector, could potentially cause confusion and constrain implementation of these principles for development of the mining sector.

The two most relevant strategies are the Mining Strategy for a 15 year period (2005) and the Business and Investment Strategy 2007 to 2013 (2007). The mining strategy for a 15 year period was developed by METE in 2005, but then combined with other strategies relevant to METE (e.g. strategies on hydrocarbons, electricity) into the overall Business and Investment Development

Strategy 2007 to 2013, which was developed by METE in 2007. Both the strategies have been approved and adopted by government.

The Business and Investment Strategy 2007 to 2013 (2007) is the over-arching document that is mainly used, but the more detailed Mining Strategy for a 15 year period (2005) still applies. However, this is not necessarily clear to all key stakeholder organisations that have some role in the implementation of the components of these strategies. It is therefore important to clarify to all stakeholders which strategies have been adopted and are applicable to the development of the sector.

b. The need for an Action Plan to back up the principles in the strategies

As mentioned above, the core principles in the Mining Strategy (2005) and the Business and Investment Strategy (2007) are relevant and applicable to the sustainable development of the mining sector. However, in order for these strategies to be properly implemented, it is important that these strategies have detailed and clear action plans that back up the principles and directions in the strategy. These action plans should include responsibilities and realistic timescales for implementation.

For example, the Strategy for the Development of the Mining Industry (2005) has considerable detail on some aspects of the framework for development of the mining sector. However, the implementation of the Strategy would be facilitated by a precise action plan containing realistic actions with clear roles and responsibilities, and with specific timescales.

The actions will need to be implemented by a range of stakeholder organisations. Just as stakeholder consultation is essential in relation to adoption of an agreed strategy, consultation is also an essential aspect in the development of the action plans, so that the stakeholder organisations agree to the actions and are fully committed to their implementation.

c. The need for clarification of the link between the New Mining Law and the Mining Strategy

The New Mining Law was adopted in July 2010. The new Law includes the new provisions on mining strategy planning, and, according to the Law, the following framework will be applied to mining planning:

- An overall mining strategy for 15 year time period.
- An Action Plan for Implementation of the Mining Strategy over a 3 year time period.
- An Annual Plan of Mining Activities.

The current Strategy for the Development of the Mining Industry (2005) has a 15-year time period and is therefore compatible with the proposed framework for strategic planning in the draft new mining law. However, it is unclear at this stage whether this Mining Strategy (2005) will represent the overall mining strategy as required in the law. In addition, there has been minimal work so far on the 3-year action plans, mainly because METE has been waiting for the mining law to be adopted.

One of the core directions of the Mining Strategy is to shift from the “first come first served” approach to licensing to a partly competitive system with tendering and contracting. Under the draft New Mining Law, based on the large amounts of geological and other data available, a 3-year plan will be developed on regions / areas that will be developed for mining through the competitive tendering system for concession contracts. The 3-year plan will provide the basis for private sector to plan potential investments. Other areas outside the 3-year plan still might operate on a first come first served basis.

d. The need for a formal mechanism for implementation of the Mining Strategy

As discussed above, it is important to have an institutional mechanism for the proper implementation of the Mining Policy / Strategy, and associated action plans, which includes all key stakeholders in its

implementation. This would enhance the effectiveness of implementation and help to focus the stakeholders on their actions within the action plans. It would also provide a process for monitoring its implementation to ensure progress.

In many countries, a common approach to the implementation of strategies that are relevant to many stakeholders is to set up a specific team, task force or working group responsible for the overall implementation.

e. The need for clear targets associated with the mining strategy

As well as a clear and agreed action plan with timescales for implementation of the mining strategy, it is important to set targets related to the strategy. These will help stakeholders to focus on priorities and to monitor the success of the implementation process. If targets are not being achieved, for example, then the action plans can be amended by the working group.

7.1.2 Actions - Mining Policy and Strategy

1) Clarification of the priority adopted strategy for the mining sector

There are several relevant strategies related to the mining sector. METE should formally clarify the priority strategies, for example that the Business and Investment Development Strategy 2007 to 2013 (METE) (2007) is the overall official strategy for all activities of METE, but that the more specific Strategy for the Development of the Mining Industry (METE) (2005) is the official adopted strategy related to mining. This clarification could be communicated at a formal event to launch the Implementation Team proposed in the action on implementation below.

2) Action Plan on strategy implementation for the mining sector

The proper implementation of the mining strategy, and therefore the sustainable development of the mining sector, will only be successful if a detailed Action Plan is developed, adopted and implemented. In addition, there will be many different stakeholder organisations with responsibilities for the implementation of actions in the Action Plan. Therefore, these actions will only be implemented if there is agreement to the Action Plan and commitment to its implementation from all the relevant stakeholder organisations.

Therefore, it is essential that detailed consultation is carried out on the Action Plan to ensure that it is understood by all stakeholders and to ensure their participation in its development and commitment to its implementation.

The Implementation Team for implementation of the Mining Strategy should be responsible for the development of a draft Action Plan and for the organisation of consultation activities on the draft Action Plan.

This Action Programme on the Institutional, Organisational and Legal Framework, developed as part of the Master Plan for Promoting the Mining Industry of Albania, under the funding from the Japan International Cooperation Agency (JICA), will provide the basis for the draft Action Plan for implementation of the strategy.

3) Clarification of the link between the draft New Mining Law and the Mining Strategy

As well as clarifying the status and priority of the various national strategies that are relevant to the mining sector, METE should formally clarify the link between the New Mining Law and the Mining Strategy (2005), and whether the Mining Strategy will represent the “overall mining strategy for 15 year time period” that is specified in the New Mining Law.

The Implementation Team could discuss this issue and the clarification could be communicated at the formal event to launch the Implementation Team.

The proposal in the Mining Law for a 3-year plan to be adopted on areas that will be developed for mining through the competitive tendering system for concession contracts is a sensible approach. This 3-year plan will provide the basis for private sector to plan potential investments.

4) Mechanism for implementation of the Mining Strategy

It is important to have an institutional mechanism for the proper implementation of the Mining Policy / Strategy, and for the associated action plans, and particularly to include in the mechanism all the key stakeholders that are involved in the implementation of the strategy. The proposed framework for implementation of the Master Plan would involve an implementation Team in METE (Figure 7.1.1).

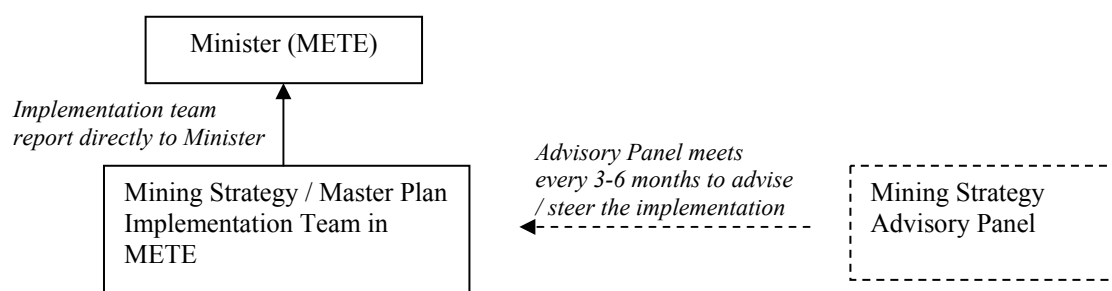


Figure 7.1.1 Proposed framework for implementation of the Master Plan

The Implementation Team would be set up in METE, with a senior person with overall responsibility and accountability. The Team would report directly to the Minister on a monthly basis to ensure accountability for implementation. There will be a specific detailed action plan that the team will be responsible for implementing, and in this way implementation can be properly measured. An example action plan was distributed at the Working Group.

An Advisory Panel, which would meet every 3-6 months, would be formed to advise and steer the implementation process. The Advisory Panel would have senior representatives from key organisations that are relevant to the Mining Strategy, including METE, AKBN, AGS and MEFWA; and also technical experts from universities, and representatives of the private sector. The Advisory Panel would advise on changes in directions and actions as necessary. METE should consider additional monetary payment to the members of the Advisory Panel to ensure their commitment.

The implementation mechanism, including the Implementation Team, Advisory Panel and reporting structures, should be specified and formally adopted in a Decision of the Council of Ministers.

The advantages of this structure include clear responsibility and accountability, and it gives strong importance to implementation. It also is a structure that should be easily maintained during the wider restructuring that often takes places in ministries.

The implementation could be started at a launch event, at which the profile of the core principles in the Mining Strategy could be raised. The launch event could involve wider stakeholder groups beyond those represented on the Advisory Panel, and would be part of a programme of improved communication and consultation with stakeholders, including community groups.

The core activities of the Implementation Team can be described in the following Terms of Reference:

- Overall responsibility for implementation of the Mining Strategy.

- Development of a detailed Action Plan on implementation of the Mining Strategy, and co-ordination of its implementation.
- Development of key performance indicators and targets associated with implementation of the Mining Strategy, and monitoring of progress towards the targets.
- Push forward the process of development of secondary legislation in line with the New Mining Law.
- Raise the profile of the Mining Strategy with international donor organisations and co-ordinate the application for funding for specific projects, such as capacity development.
- Provide a mechanism for sharing information and data on the mining sector between stakeholders.
- Work to promote transparency in the mining sector, and push forward overall actions related to EITI.
- Co-ordinate the preparation of procedures and guidelines on tendering, based on lessons learned from existing tenders.
- Promote improved health, safety and environmental practices in the mining sector.
- Facilitate the communication between stakeholders and with the community on the mining sector.
- Manage and co-ordinate other specific initiatives, such as implementation of capacity development and training plans.

5) Targets associated with the Mining Strategy

The Implementation Team for the Mining Strategy should propose targets associated with the Mining Strategy and key performance indicators relevant to those targets. As part of its role to monitor the implementation of the Mining Strategy and Action Plan, the Implementation Team should monitor progress in achieving the targets.

The targets could cover, for example, production and financial results from the sector, levels of foreign investment, number of private companies entering the market, number of contracts tendered.

Table 7.1.1 Action Plan for METE Implementation Team of Mining Strategy

	Action	Description / Rationale	Responsibility	2010						2011					
				7	8	9	10	11	12	1	2	3	4	5	6
1. Establish implementation framework	Review roles and responsibilities	More detailed roles and responsibilities and clarify if necessary to avoid gaps etc, particularly monitoring and enforcement roles.	METE Implementation Team							↑					
	Appointment of responsibility	Appointment of responsibility for implementation of Master Plan to "Implementation Team" in METE. The team should be accountable for proper implementation and should report to the Advisory Panel.	Minister METE to make appointment						↑						
	Review of licensing process	Review of licensing process and identification of shortfalls, such as cases where there are overlapping licence areas, and identification of solutions to improve the process in order to increase private sector confidence. Consultation with NLC, AKBN, AGS and other stakeholders. Discuss and decide whether the silent consent principle for licensing should be amended in terms of the number of days to deal with major permit applications in the mining sector.	METE Implementation Team							↑					
	Adoption of Master Plan	Decision of Ministers to formally adopt Master Plan developed under the JICA project.	Minister METE to present to Cabinet							↑					
	Launch of Master Plan	Formal event for launch of the Master Plan	METE to organise event							↑					
	First meeting of Advisory Panel	Assumes METE will take responsibility for implementation and an Advisory Panel made up of representatives from METE, AKBN, AGS, DSRMI, MEFWA, will be formed to meet every 3-6 months to monitor implementation progress.	METE to organise meeting							↑					
2. Legal matter	Identify secondary legislation	Following the New Mining Law (adopted 15 July, 2010). Identify and agree updated or new secondary legislation needed.	METE Implementation Team to develop list of secondary legislation.							↑					
	Develop secondary legislation	Start development of updated / new secondary mining legislation.	METE Implementation Team								↑				
	Package of legislation	Put together package of legislation, brochures, etc, for interested private sector investors in the mining sector; including copies of mining laws and also lists or references of other relevant laws (e.g. environmental, cultural heritage, etc).	METE Implementation Team									↑			
	Guidelines	Identify requirements for improved guidelines related to any aspects of mining sector development, prioritise and develop new/updated guidelines for priorities (in consultation with experts from AKBN, MEFWA, etc). Main example is guidelines for inspection for AKBN, DSRMI, etc. Use recommendations in the Master Plan as a starting point.	METE Implementation Team										↑		

Table 7.1.1 Action Plan for METE Implementation Team of Mining Strategy (continued)

	Action	Description / Rationale	Responsibility	2010												2011					
				7	8	9	10	11	12	1	2	3	4	5	6						
3. Action plan, yearly to multi year term	Consultation on 3 year action plan	Consult with stakeholders on 3 year plan, update plan as necessary.	METE Implementation Team																		
	Develop 3 year action plan	Develop 3 year action plan of mining activity, based on core technical work in JICA project, within 6 months of the adoption of the New Mining Law.	AKBN																		
	Adoption of 3 year plan	Decision of Ministers to formally adopt 3 year plan.	Minister METE to present to Cabinet																		
	Consultation on Annual Plan	Consult with stakeholders on annual plan, update plan as necessary.	METE Implementation Team																		
	Develop Annual Plan	Develop Annual plan as required by the New Mining Law, within 6 months of the adoption of the Law.	AKBN																		
	Adoption of Annual Plan	Assume the Annual Plan can be approved by the Minister (rather than Council of Ministers)	Minister METE to approve the adoption of the annual plan																		
	Adopt Mining Strategy (15 years)	Clarify applicable strategy - Mining Strategy for a 15 year period (2005).	METE Implementation Team																		
	EITI	Actions related to the validation process for EITI – need to be implemented by May 2011.	METE Implementation Team																		
	Develop communication plans	Develop and implement plans to improve communication between stakeholders, for example communication between METE and municipalities on mining (e.g. contacts database, newsletters, etc). (Linked to the EITI tasks).	METE Implementation Team																		
	Tendering and contracting – capacity development	Take actions needed to strengthen the tendering and contract processes for concessions (e.g. prepare model tender documents, model contracts, guidelines, etc).	METE Implementation Team																		
4. EITI, Capacity Development	Capacity assessment	Capacity assessment and prioritisation of actions to develop capacity, particularly for recruitment / training to increase resources for monitoring and enforcement. This could be an international Technical Assistance project. Use recommendations in the Master Plan as a starting point.	METE Implementation Team																		
	Monitor GIS development	Monitor and co-ordinate development of GIS database by AGS/AKBN to ensure deadlines are achieved.	METE Implementation Team			ongoing															
5. Data & Information	Promotion activities for private sector participation	Review and strengthen the role of AlbInvest/AIDA to attract private sector investments in mining. Co-ordinate other activities to promote private sector investments. Use recommendations in the Master Plan as a starting point. (Linked to GIS development).	METE Implementation Team																		

7.2 Action Programme - Roles and Responsibilities

7.2.1 Key Issues - Roles and Responsibilities

The key issues in Albania for strengthening and clarifying roles and responsibilities in the mining sector are:

- The need for a clear role and accountability for the overall implementation of the strategy and action plans for the development of the mining sector.
- The need for clarifying roles for other important tasks relevant to the mining sector.

a. The need for a clear role and accountability for the overall implementation of the strategy and action plans for the development of the mining sector.

The implementation of the various components of the Mining Strategy, and the implementation of specific actions in the Action Plan on Mining, will involve many different stakeholder organisations. It is essential that there is central co-ordination of the many organisations carrying out actions. This central co-ordination will be needed to manage the action plan, monitor implementation, push forward sector development, etc. It is important that the responsibility for central co-ordination is assigned and agreed, and the organisation is made accountable for the timely implementation of the actions. This organisation should also assist in the improvement of the overall communication between key stakeholders in the mining sector, which in turn will help the quicker implementation of actions to develop the sector.

b. The need for clarifying specific roles for other important tasks relevant to the mining sector.

It is important to strengthen, clarify and agree roles and responsibilities for specific tasks relevant to development of the mining sector so that these tasks are implemented as efficiently as possible and therefore properly contribute to the development of the mining sector. The specific roles that need clarification include:

- Monitoring and enforcement.
- Tendering and contract management.
- Encouraging private sector investment.
- Central collection and analysis of reporting.
- Community relations.
- Environmental liabilities.

In the longer-term, the direction under the new Mining Law is for the capacity to be strengthened in the National Licensing Centre so that it can carry out the required activities to award mining permits without the detailed assessment by AGS or AKBN. In the longer-term, this would reduce potential conflict of interest in responsibilities for licensing and monitoring activities.

The longer-term roles of AGS and AKBN would therefore be the monitoring and supervision of exploration and development operations respectively, and the management and dissemination of information related to mining. In practice, given the expertise and experience in these organisations, they will need to carry out expert reviews of licence applications for many years.

The relevant individual inspection bodies (Mining Safety Inspectorate of METE, Environmental Inspectorate of MoEFWA, etc) should maintain their roles, but for some of these organisations their capacity needs to be strengthened through recruitment / training as their resources for monitoring are limited. In addition, higher budgets are required where inspectors need to spend more time in the field, to cover fuel costs, etc.

7.2.2 Actions - Roles and Responsibilities

1) Assigning a clear role and accountability for the overall implementation of the strategy and action plans for the development of the mining sector

It is essential that there is central co-ordination of the many organisations carrying out actions for the implementation of the various components of the Mining Strategy.

As discussed in Section 7.1, it is proposed that an Implementation Team for the Mining Strategy is set up, with representatives from the key organisations that are relevant to the Mining Strategy, including METE, AKBN, AGS and MEFWA. The Implementation Team would have overall responsibility for implementation of the Mining Strategy and Action Programme and would be fully accountable for the timely implementation.

The Implementation Team would strengthen communication between institutions related to mining sector development, and would strengthen stakeholder commitment to policy implementation. It would co-ordinate with other government agencies about other policies and legislation, to ensure consistency and continuity between policies and laws covering different sectors.

In addition, the Implementation Team would be an excellent mechanism for the discussion and agreement on more specific responsibilities, such as those covered in the section below.

The Advisory Panel for implementation could be set up as a continuation and expansion of the Working Group on Institutional and Legal Aspects that will be working as part of the JICA *Study for the Master Plan for Promoting the Mining Industry of Albania*.

2) Clarifying specific roles for other important tasks relevant to the mining sector

For certain specific roles, it is important to improve the clarification of responsibilities between stakeholders in order to strengthen the mining sector development. For example:

- There are many different organisations involved in monitoring and enforcement, and the capacity of many organisations needs to be strengthened (e.g. AKBN) in order to have the resources to carry out the monitoring roles properly. One aspect of this is to clarify the exact roles for monitoring so that these are implemented as efficiently as possible.
- For the tendering and contract management activities, the approach of setting up commissions to carry out these activities is sensible. The commissions would be represented by different organisations, but for smaller contracts it would be inefficient to set up new commissions for each contract, and it would be sensible to have one permanent commission for smaller contracts. These would cover the tendering, evaluation and negotiation tasks, and the contract management and monitoring roles will need to be clarified.
- The respective roles of AKBN, Albinvest and other stakeholders in encouraging private sector investment need to be clarified.
- The role in overall collection and collation of reports from mining organisations, and the assessment of these reports and production of overall data and information, need to be clarified. These roles are generally with AKBN at present, which is appropriate, although some other organisations are involved.
- Community relations in the mining sector need to be strengthened and the roles related to these activities need to be clearly delegated and agreed. Clearly the relevant local authorities will have an important role, but central co-ordination of community relations should also be assigned.
- Responsibilities related to environmental liabilities need to be clarified and realistic actions enforced to protect the environment, health and safety of the community.

The mechanism for clarifying these roles should be for the Implementation Team for the Mining Strategy to discuss and agree the responsibilities and the mechanism and for the roles to be properly implemented.

7.3 Action Programme - Legislation

7.3.1 Key Issues - Legislation

The key issue in Albania for strengthening legislation related to the mining sector is:

- The ongoing development and adoption of any necessary secondary legislation within the framework of the New Mining Law .

a. The ongoing development and adoption of any necessary secondary legislation within the framework of the New Mining Law.

Now that the New Mining Law has been adopted and come into force, there is a need for secondary legislation (regulations) covering certain specific regulations and standards, as identified in the Mining Strategy. The need for different regulations will be identified over time on an ongoing basis, and will be developed within the framework of the mining law.

It is important that the secondary legislation is developed so that it is compatible with other relevant legislation, such as laws covering environmental protection, EIA, health and safety, investment laws, tax laws, etc; and also that the Law aligns with EU legislation. In addition, the legislation and relevant standards must be realistic, and require step-by-step improvements in the mining sector. A balance is needed between the development of sector and ensuring that the requirements of legislation are affordable.

Also, it is important that the Mining Law and related legislation must be enforceable. This point covers the need for strengthened capacity and efficient systems to enforce the legislation.

7.3.2 Actions - Legislation

1) The subsequent development and adoption of any necessary secondary legislation within the framework of the Mining Law

The development of secondary legislation (regulations), covering certain specific regulations and standards in the mining sector, will need to be developed over time as the specific issues are identified on a case by case basis, in line with the Mining Strategy. These might cover specific mining activities (e.g. for specific processes, management of specific waste types, etc); specific financial aspects or approaches that will attract investment; regulating specific companies, such as small operators or individuals, etc. The Implementation Team for implementation of the mining strategy, set up under actions proposed in Section 7.1, should be responsible for co-ordinating the development of secondary legislation.

7.4 Action Programme - Monitoring and Enforcement

7.4.1 Key Issues - Monitoring and Enforcement

The other key issues in Albania for strengthening monitoring and enforcement related to the mining sector are:

- The urgent need for capacity development related to monitoring of mining activities.
- The need to strengthen enforcement mechanisms in the mining sector.

a. The urgent need for capacity development related to monitoring of mining activities.

As discussed above, there are some significant shortfalls in capacity at the main important organisations related to monitoring capabilities. This shortfall is not necessarily in terms of technical capability of existing staff, but mainly that there are simply not enough expert employees to carry out the monitoring responsibilities and to ensure good monitoring coverage at all mining sites. In particular, more staff resources are needed to increase capacity for monitoring at AKBN, the MEFWA, and DSRMI.

b. The need to strengthen enforcement mechanisms in the mining sector.

As well as strengthening capacity for monitoring, it is also important that the mechanisms and systems for enforcement need to be more efficient. This covers the level of penalties for non-compliance with legislation and licence requirements, systems for the timely enforcement of the penalties, and even strong contract management and enforcement of provisions in contracts.

7.4.2 Actions - Monitoring and Enforcement

1) Capacity development related to monitoring of mining activities.

It is important that the Action Programme addresses the shortfalls in capacity related to monitoring capabilities. As mentioned, the main shortfalls are not necessarily in terms of technical capability of existing staff, but in terms of the necessary number of staff to ensure good monitoring coverage at all mining sites. In particular, more staff resources are needed to increase capacity for monitoring at AKBN, MEFWA, and the DSRMI.

The main actions that are required to strengthen capacity for monitoring include:

- A more detailed capacity needs assessment of the main gaps in the key organisations responsible for monitoring. The output of this assessment would include a staffing plan and budget for increased staff resources, as well as identifying training needs. The capacity assessment will need to compare the existing resources with future needs including the step up in resource needs to monitor the compliance with more stringent future legislation that is aligned with the EU framework. The efficient distribution of increased resources in different regional offices will need to be considered.
- Development of a detailed training plan for increasing monitoring capacity in the main organisations (e.g. AKBN, MEFWA, DSRMI, AGS, etc), covering technical training as well as management training where needed.
- Identification of other capacity needs, such as up-to-date computers, transport, and other aspects.
- Identification of any specific needs related to collection and management of data and information in the mining sector, as well as any needs for improved databases to help storage and use of the data.
- Strengthening of internal systems in the key organisations, as necessary, such as procedures, staff management systems, etc. This would include the development of monitoring guidelines where needed.
- Clarifying roles and responsibilities for monitoring, to ensure there are no inefficiencies from overlapping roles, as covered in Section 7.2.
- Development and approval of budgets needed for strengthening capacity through the above actions.

Actions on wider capacity development are identified in Section 7.11.

2) Strengthening enforcement mechanisms in the mining sector.

It is also important that the mechanisms and systems for enforcement are efficient so that bad practices are deterred. It is important that enforcement mechanisms are transparent and fair, and that the penalties are processed with limited delay.

A detailed assessment of enforcement aspects and mechanisms is needed, covering the level of penalties for non-compliance with legislation and licence requirements, systems for the timely enforcement of the penalties, and even strong contract management and enforcement of provisions in contracts. More detailed actions would then need to be planned from this assessment.

7.5 Action Programme – Private Sector Participation

7.5.1 Key Issues - Private Sector Participation

The key issues in Albania for strengthening private sector participation in the mining sector are:

- The attraction of investment from credible international private companies.
- The strengthening of the capacity of Albanian private companies in the mining sector.

a. The attraction of investment from credible international private companies.

International private companies in the mining sector will be willing to invest in countries when they are confident that there will be a return on their investments (i.e. profit) and they are confident that the risks can be managed.

Therefore, the companies are looking to invest in countries where there is a strong investment climate, stable legislation, transparent licensing and tendering procedures, reliable existing data and information (e.g. on land ownership), strong transport infrastructure, reliable utility services (e.g. energy, water, etc).

The attraction of investment from credible international private companies therefore covers a complex mix of activities to strengthen various aspects, and this is strongly linked to other components of this Action Programme. It is therefore important that there is a strong policy (Section 7.1) to strengthen private sector investment, clear roles and responsibilities for implementation of that policy (Section 7.2). In addition, robust and stable legislation is needed (Section 7.3) so that private investors are confident in the applicable laws, and therefore the adoption of the new mining law is a priority step. Also, transparent and efficient tendering and contracting (Section 7.6) and licensing systems (Section 7.7) are important, as well as taking actual actions to improve the investment climate (Section 7.8), improve accessibility and reliability of data (Section 7.9) and improve communication with stakeholders (Section 7.12).

b. The strengthening of the capacity of Albanian private companies in the mining sector.

As well as attracting investment from international private companies, it is important to also build local capacity so that a strong Albanian private sector develops in mining over the longer term. For example, this could be through the encouragement of joint venture arrangements between international companies and local companies, and the use of Albanian companies as sub-contractors.

In addition, initiatives to help the private sector develop capacity are needed. For example, the standards of technical reports submitted by the private sector to AKBN is often apparently poor. The METE Guideline no. 1028, dated 10.12.2009 “On the content of the documentation to grant a mining permit” provides useful information on the requirements in permit applications, but more detailed guidelines might be useful.

There are many local Albanian companies and individuals operating in the mining sector at present, but these companies generally tend to be small and sometimes less organised. These companies and individuals, however, do have an important role to play in terms of the capacity and experience that they have already gained, and in terms of local income and employment. However, in many cases the companies do need to improve their technical capacity in order to grow their operations, and many companies (and individual workers in particular) need to improve environmental, health and safety performance. Sometimes the activities of small companies are inefficient and there are no advantages of economies of scale.

Many of these aspects related to local companies are linked to social aspects (Section 7.13). In addition, there are many cases where individuals are working on waste dump sites from the mining sector to recover and sell various materials. These activities are very dangerous in terms of health and safety (Section 7.14), and are currently unregulated. However, these individuals also have a potential role to play in the sector and opportunities could be investigated for encouraging employment of these persons.

As well as local private mining companies, the strengthening of the mining sector and encouragement of private sector participation will bring economic benefits in terms of strengthening the business activities of the numerous private companies that are suppliers to the mining sector.

7.5.2 Actions - Private Sector Participation

The Action Programme for privatisation should involve a mix of top-down larger contracts with international private companies, as well as bottom-up organisation and strengthening of small Albanian companies working in the mining sector.

1) Attracting investment from credible international private companies.

The attraction of investment from international private companies covers different activities to strengthen various aspects, and actions in this component are strongly linked to other components of this Action Programme. For example, adoption of the New Mining Law is a priority action to attract private investment because clear and stable legislation (Section 7.3) will increase the confidence of private investors in the applicable laws. In addition, strengthening tendering and contracting processes (Section 7.6) and licensing systems (Section 7.7) are important so that these are transparent and efficient and attract private interest. Section 7.8 also includes overall actions to improve the investment climate.

As well as these actions, marketing plans need to be developed and implemented, focusing on demonstrating a strong and reliable investment climate in the mining sector in Albania. This can be done through the participation in trade conferences and exhibitions, the development and distribution of consistent and up-to-date marketing materials, etc.

In addition, international donor organisations can play a role in supporting the development of frameworks for private sector participation and investment.

2) Strengthening the capacity of Albanian private companies in the mining sector.

In the longer-term, METE should be aiming to encourage a strong local sector in mining, which would bring sustainable long-term economic and employment benefits. There are various ways in which local private companies in the mining sector can be strengthened. Initially, the formation of associations to improve communication and sharing of information between companies can help, where this does not conflict with facilitating competition. Such associations are useful also for lobbying by the private sector for the implementation of improved aspects related to the investment climate.

It might be important to strengthen the reporting of information on the companies so that this can be used to identify more specific actions to enhance the role and capacity of local Albanian private companies.

More detailed specific actions will help in the development of the private sector, such as encouragement in international tender documents for international companies to form consortia with local Albanian companies, and/or use local companies as sub-contractors, as well as employing people from the local community directly. In addition, more guidelines on various aspects of private sector participation would be useful for private companies.

As with the actions to attract international companies, the strengthening of local Albanian companies will also benefit from the adoption of the New Mining Law (Section 7.3), strengthening licensing systems (Section 7.7), etc.

7.6 Action Programme - Tendering and Contract Management

7.6.1 Key Issues - Tendering and Contract Management

The key issue in Albania related to tendering and contract management in the mining sector is to strengthen the tendering process and improve the contract documents.

a. Strengthening the tendering process and improving the contract documents

It is important that the tendering process is efficient, open and transparent, so that credible private sector companies are attracted to investing in the mining sector. There has been some initial tendering and contracting already in Albania, and based on this there have been many lessons learned about how the tendering could be improved, and particularly the contract documents strengthened, so that both parties have less risk. Also, the strengthening of tendering and contracting processes will be in line with requirements in the Extractive Industry Transparency Initiative (EITI).

7.6.2 Actions - Tendering and Contract Management

1) Strengthening the tendering process and improving the contract documents

The following actions are proposed in relation to strengthening the tendering process and improving the contract documents:

- Assess the lessons learned from the tendering processes carried out so far for Elbasan, Bulqiza, Pukë and Kalimash and identify the main areas where tendering can be improved.
- Based on the lessons learned prepare procedures for tendering of mining concession contracts, as well as guidelines for tendering.
- Assess the lessons learned from the contract documents for Elbasan, Bulqiza and Pukë and identify the main areas where the documents can be improved.
- Based on the lessons learned prepare model contract documents for mining concession contracts, as well as guidelines for contract management. These model contracts would provide the main basis for contract development. The model contracts would be tailored for different concessions with special conditions of contract added.

7.7 Action Programme – Licensing

7.7.1 Key Issues - Licensing

The key issues in Albania for licensing in the mining sector are:

- Improving the efficiency of the licensing process.
- Improving the application of the licensing process.

a. Improving the efficiency of the licensing process.

The current system of licensing in the mining sector is reportedly working efficiently, but the issuing of licences for mining can take time because of many different steps needed and many different stakeholders. The implementation of a one-stop service (NLC) by the METE is a sensible approach and this has strengthened the licensing process. The issue that a licence will be granted after a fixed number of days from the application date (the silent consent principle) if there has been no response from the NLC is a potential problem that should be addressed, particularly considering the licensing process in the mining sector is quite complex and that the relevant institutions involved in the various reviews and approvals are under-resourced.

b. Improving the application of the licensing process.

Although the licensing process is reportedly quite effective, it is important that it is applied properly and consistently, so that there is investor confidence that the official system will be properly implemented. There are, for example, reports from some private exploration companies that there are over-lapping licences in some areas. Also, the activities to renew mining permits need to be implemented quicker through an increase in capacity of AKBN (Section 7.11).

In addition, it is important that the implementation of the provisions in licences, such as environmental, health and safety management, are properly monitored so that they are fully implemented throughout. Also, it is important that the activities in the mining sector of the organisations and individuals without licences are better regulated, taking into account the social implications (Section 7.13).

7.7.2 Actions– Licensing

1) Improving the efficiency of the licensing process.

METE has set up the NLC, which provides an efficient one-stop service for licensing, and this will increase investor confidence in an efficient and transparent process.

The issue of the silent consent principle, in that a licence will be granted after a fixed number of days from the application date if there has been no response from the NLC, needs to be addressed for mining. A decision is needed on whether a longer time period should be applied in the system to take account of the complexities of gaining approvals from different organisations for larger exploration or exploitation activities.

In addition, the process for renewing mining permits is slow and needs to be improved, through an increase in capacity at AKBN so that they have better resources to be able to carry out the tasks needed to check and approve permit renewals (Section 7.11).

2) Improving the application of the licensing process.

The Implementation Team for the mining strategy, proposed in Sections 7.1 and 7.2, should focus on ensuring that the licensing process is properly and fairly applied. This should involve a detailed review of the strengths and weaknesses of the process, identifying, for example, the reasons for shortfalls such as cases of overlapping licence areas, and identifying and agreeing solutions. This is linked to several aspects, including implementation of the strategy (Section 7.1), proper implementation of legislation (Section 7.3), proper monitoring and enforcement (Section 7.4), etc. All these components will contribute towards the better implementation of the licensing process.

The METE Guideline no. 1028, dated 10.12.2009 “On the content of the documentation to grant a mining permit” is quite clear on the information required from a private company on mining permit applications. However, more detailed guidelines for various aspects of licensing, private sector participation, and monitoring, might be useful.

7.8 Action Programme - Improving the Investment Climate

7.8.1 Key Issues - Improving the Investment Climate

a. Overall improvement of the investment climate in Albania in the mining sector

As mentioned, the overall improvement of the investment climate in the mining sector is linked to all other components in this Action Programme, such as strategy implementation, adoption of legislation, effective licensing processes, etc. More specifically it is important to identify and adopt specific steps to encourage investments, either on a temporary or permanent basis, for example specific incentives such as tax breaks, policy actions related to imports and exports, etc. There is also a need to clarify a central role and action plan for promotion (e.g. marketing) of the mining sector in Albania, for example through restructuring the role of Albinvest.

7.8.2 Actions - Improving the Investment Climate

1) Overall improvement of the investment climate in Albania in the mining sector

The Implementation Team for the mining strategy should identify specific measures, such as incentives (tax, import procedures, etc), that can be taken to improve the investment climate, and should work with the relevant other stakeholder institutions on the implementation of such measures.

In addition the role of an organisation, such as Albinvest (AIDA), should be more clearly specified and agreed on the proactive promotion of the mining sector in Albania. The METE should consider restructuring Albinvest (AIDA) and assigning specific and detailed tasks on promotion of the sector. This would include participation in, and/or organisation of Albanian experts to participate in, international mining sector events and trade shows, conferences, etc.

The actions to improve the investment climate are linked to actions in other components to strengthen various aspects, such as clarifying roles and responsibilities (Section 7.2), ensuring accessible and consistent contact points and strong communication (Section 7.12) with the relevant institutions for interested private sector companies to make enquiries, and ensuring access to reliable data and information (Section 7.9). In particular, it is important for the licensing process to be consistent, fair and transparent (Section 7.7).

7.9 Action Programme - Data and Information Management

7.9.1 Key Issues - Data and Information Management

The key issues in Albania related to data and information management in the mining sector are:

- Ensuring that there is a central point for obtaining data and information.
- Improving the reliability of data and information.

a. Ensuring that there is a central point for obtaining data and information.

At present, there is no obvious central contact point for potential investors to obtain data and information. These companies will initially get in touch with AGS for the information they need

related to geology and past exploration, and also with AKBN related to past mining activities. However, there is no clear point of contact for other information.

In addition, the time period needs to be specified in legislation for disclosure of information by an exploration company that has not invested in production.

b. Improving the reliability of data and information.

Although the AGS and AKBN have made major improvements, some data at present on the mining sector is unreliable and not checked or properly verified. Wherever possible, it is important to improve the reliability of the data through implementation of proper verification systems, and also to provide a clear indication of the reliability and uncertainty associated with different data sets.

One example is data from environmental monitoring, which are submitted to regional offices of MEFWA by mining companies, but environmental sampling and analysis methods are inconsistent, meaning that the data are unreliable.

7.9.2 Actions - Data and Information Management

1) Ensuring that there is a central point for obtaining data and information.

There would be benefits in appointing a central contact point for potential investors to obtain data and information. Much of the data will be with AGS for the information needed on the geology and past exploration, and with AKBN related to past mining activities. However, a clear initial point of contact for other information would provide encouragement to investors and facilitate their planning.

2) Improving the reliability of data and information.

Guidelines on monitoring and reporting (Section 7.4) should include the requirements and specifications for consistent reporting of data and information from monitoring. It will also be important to ensure there are procedures for checking and verifying data and information.

It is also important for strong co-ordination between different institutions for the sharing of knowledge, best practices, data and information.

7.10 Action Programme - Budgets and Financial Management

7.10.1 Key Issues - Budgets and Financial Management

The key issue in the mining sector in Albania related to this component is to ensure strong financial management and transparent financial reporting.

a. Ensure strong financial management and transparent financial reporting

Improving sector revenue management and reporting is a major part of strengthening governance in the mining sector. It is important to have consistent and understandable financial procedures and rules related to financial aspects, calculation of fees and royalty payments, etc. The ongoing work towards adoption of EITI to improve transparency and accountability is important, as this will continue to increase investor confidence in the mining sector in Albania, including the facilitation of appropriate lending for investments in the sector. Examples include the disclosure of payments made by mining companies to the government. Stronger financial management will ensure better value for money overall and a more effective and efficient mining sector, which will lead to more rapid development. Actions related to this key issue are proposed below.

7.10.2 Actions - Budgets and Financial Management

1) Ensure strong financial management and transparent financial reporting

The key issue in the mining sector in Albania related to this component is to ensure strong financial management and transparent financial reporting, as identified above. The Government of Albania should continue to work towards the adoption of EITI, which will strengthen the auditing of financial aspects and accountability in the mining sector.

Within this, the clarification of the process of calculation of fees and royalty payments is important, as well as transparent and easily understandable tax rules (including tax incentives for investors if possible). It is important that there is a stable system related to finances and taxes so that investors are confident that financial risks can be managed.

In governmental institutions, such as METE, AKBN, AGS, etc, it is important that, as more revenues come to the Government from the sector, the budgets for resources and capacity in these government institutions are increased so that they can effectively carry out their various roles, including the monitoring of the sector activities. A specific proportion of royalties and other payments by the private sector could, for example, be ring-fenced for investments in recruitment and training for these public sector institutions, particularly in monitoring. Likewise, a large proportion could be ring-fenced for expenditure on remediation of past environmental liabilities.

7.11 Action Programme - Capacity Development

7.11.1 Key Issues - Capacity Development

For the mining sector to develop and expand in Albania, and standards to improve towards EU, then capacity development is a key issue that will need much higher focus for the institutions in the mining sector.

a. Overall capacity development in institutions in mining administration in Albania

The existing technical employees in the institutions in Albania with responsibilities in the mining sector are generally very strong in technical capacity in most areas. However, for many functions there are not enough employees to carry out the roles, such as for monitoring and enforcement, and for some functions, such as tendering and contract management, there is not the experience in the institutions and therefore capacity needs to be strengthened.

Also, for some functions in monitoring and enforcement, budgets are reportedly not sufficient to cover the costs of required travel (e.g. fuel costs, etc) for inspectors to visit all the operations that they need to visit to fulfil their responsibilities.

In addition, there is a need to improve co-ordination and communication between different institutions in the mining sector to ensure that there are efficient activities for sharing knowledge, best practices, data and information (Section 7.12).

Action plans related to these issues on capacity development are proposed below.

7.11.2 Actions - Capacity Development

1) Overall capacity development in institutions in mining administration in Albania

The following actions are proposed in relation to the overall capacity development in institutions in mining administration in Albania:

- The first step will be to develop a more detailed capacity assessment and development plan, particularly focusing on the priority shortfalls in capacity. The planning should first assess the capacity to carry out the main functions at present, as well as future capacity in consideration of future expansion of the sector and alignment of legislation with EU standards.
- A detailed training needs assessment should be developed as part of the capacity development plan. This should cover technical and management training, as necessary.
- The capacity development plan should particularly focus on strengthening capacity related to tendering and contract management, because there is less experience in this activity in METE. The tendering of concession areas is a core direction in the Mining Strategy.
- In the short-term, actions for capacity development should focus on expanding the staff numbers for monitoring and enforcement activities in AKBN and DSRMI in METE, and in the regional offices of MEFWA. This action is discussed in more detail in Section 7.4.
- Capacity development can involve various approaches, including specific training courses, and on-the-job training with key personnel working alongside international specialists contracted through technical assistance projects. Therefore, it is important for the METE to request funding from international donor organisations for capacity development. This might also involve study tours and overseas training funded by donor organisations.
- The development of procedures and guidelines is an important aspect of capacity development, to ensure proper methods that are consistently applied. For example, guidelines in monitoring, tendering, reporting, etc, should be developed as part of the capacity development plan.
- The strengthening of roles and responsibilities at organisational level (Section 7.2) is an important aspect of capacity development.
- In addition, the strengthening of communication and sharing of information, experience and best practices (Section 7.9), and the strengthening of overall communication with stakeholders (Section 7.12), are important aspect of capacity development at institutional level, and the capacity development plan should include mechanisms for making these activities more efficient.

7.12 Action Programme - Communication and Public Relations

7.12.1 Key Issues - Communication and Public Relations

The key issues in Albania related to communication and public relations in the mining sector are:

- The need to specify roles related to communication and public relations.
- The need for an overall planned framework for communication and public relations.

a. The need to specify roles related to communication and public relations.

In order to step up the standards of communication and public relations in the mining sector it is important to allocate clearer roles for these activities amongst the local authorities, METE, AKBN, DSRMI and MEFWA.

b. The need for an overall planned framework for communication and public relations.

Improvements in communication and public relations are needed related to the mining sector, covering information about future developments, environmental protection, investments in local infrastructure, etc. In addition communication between institutions on mining strategy implementation is needed. Stakeholder consultation on mining plans, draft laws, and specific developments is also important.

Some actions related to these issues are proposed in Sections 7.1 and 7.2.

7.12.2 Actions - Communication and Public Relations

1) The need to specify roles related to communication and public relations.

As part of activities under Section 7.2 on roles and responsibilities, the Implementation Team for the Mining Strategy should discuss, clarify and agree roles for communication and public relations. The roles will cover communication with local communities in mining areas, promotion activities to encourage private sector investment, and communication with international donors and international finance institutions. The clarification should cover the relevant roles of the various institutions within METE, including AKBN, General Directorate on Industrial Policies and AlbInvest. In particular, roles related to communication with local communities in mining areas need to be clarified and formalised, covering the roles of local authorities, and also of AKBN, DSRMI and the regional offices of MEFWA.

There needs to be an accessible and consistent contact point, with contact details readily available, for private companies to obtain information.

2) The need for an overall planned framework for communication and public relations.

The Implementation Team should also develop a framework plan for communication and public relations, and support local authorities in specific plans as applicable for individual mining activities. Methods of communication can include media, newsletters, community meetings, etc. It is important to encourage local authorities to communicate to local people about the potential benefits of the development of mining operations in their areas, such as employment, local social investments, etc.

The Implementation Team should identify mechanisms for improving communication between relevant institutions in the mining sector on strategy implementation, and for carrying out consultation on policy, plans, draft laws, etc, related to mining.

The Implementation Team should identify the responsibility and plans for communication with other international stakeholders (e.g. JICA, World Bank, IFC, EBRD, donor organisations, etc), for example by the Project Management Unit in AKBN.

In addition, the set up of the Implementation Team itself could involve a launch event in order to raise the profile of the Implementation Team.

CHAPTER 8 SUMMARY OF THE MASTER PLAN OF PROMOTING OF ALBANIA MINING-SECTOR DEVELOPMENT

The present situation was clarified as the following through the analysis of the three areas that provided the core of this project:

- **As to the investment climate at large, the improvement is reported by the international organizations. In recent years, the measures that the Albania Government has performed are evaluated highly. The driving force of these improvements is the activity towards the harmonization with the EU standards, that is advancing in the sector development.**
- **Also in the mining sector, enactment of the new Mining Law, specification of prioritized areas for mining development etc., are advancing. Public organizations that provide simplified licensing procedures and one-stop service for foreign investors have started covering the mining sector. Albania is a candidate country of EITI and arrangement towards the full membership is also advancing.**
- **An international tender of mine development was performed and the joint company of China and Turkey signed a contract of mine development (June, 2010). In addition, seven exploration projects are ongoing by offshore companies.**
- **The above improvements can be regarded as the result of governmental progress towards target for sector development. On the other hand, there are many further challenges remaining, particularly related to financial difficulties and the need for capacity development.**
- **There are problem with implementation in monitoring activity of mining operations, the enforcement of compliance and effective IT utilization (GIS Database) for information disclosure. Moreover, there are concerns about the implementation and the accreditation of chemical and physical analysis for monitoring as well as EITI implementation. Addressing these issues will impose the investment climate.**

For this reason, it is required to build the promotion strategy of the mining sector carefully, considering a priority and balance so that this difference (gap) may be reduced from now on, and to strengthen the capacity development. To address the above-mentioned issues that became clear during the Study, the JICA study team proposes a master plan of the Promoting of Mining sector to contribute to the national economy development of Albania as follows.

This master plan expects to be utilized for the road map in which the Albanian Government will implement the new Mining Law from now on.

Although many negative legacies by the past mining activities exist in the Balkan countries, the risks can be said to be relatively low in Albania, and these risks can be controlled by implementation of a strong mining strategy. Furthermore, it is expected that Albania itself will contribute to the interaction and the cooperation among the communities of the mining sector developed in the Balkan countries.

More detailed actions need to be developed by the implementation team in METE for the Master Plan. These should include actions to ensure that there are proper emergency response plans and procedures are in place, and capacity is strengthened to carry out emergency response operations.

The basic concept of the master plan of mining sector Development

The historical success of the mining sector, and survey data from that time period, can be used as the general basis for development and promotion of the sector. The contribution of the mining sector to the national economy is well known to the population of Albania, and there are high expectations for the future economic development from the mining sector. On the other hand, the social impacts in communes that were dependent on mining and the deterioration of the environment came to be recognized through the process to the market economy and the effort for the integration to EU.

The Study for the Master Plan for Promoting the Mining Industry of Albania covered three fields including the build-up of GIS and Information dissemination, common issues of the mining sector (e.g. institutional, legal, etc.), and development of strategy for promising minerals to decide upon the master plan for future mining sector promotion. These are strong linkage between these three fields, and the master plan for future mining sector promotion is proposed as follows.

The build-up of the GIS and Database does not only concern the rationalization of compilation in gathering of the existing data, but meets the requirement as a fundamental tool supporting, the checking and confirmation of the terms of the licensing of mining rights and management of the mining cadastre. As mining activities are directly linked with utilization and rights of lands and various stakeholders may be involved, compared with other business activity, it is markedly complicated, and, therefore, utilization of IT by the mining sector is far behind compared with IT of the other ministries and government offices in Albania. Build up of IT is urgent also as a practical channel of the information dissemination linking directly to investment promotion. Moreover, realization of GIS and Database is indispensable also for the international interaction among Balkan countries that are sharing many common features in geology or mining. For this reason, although the conceptual design of GIS and Database was supported in the Study, the Capacity Development for making future actual development and its operation into a concrete activity is required.

In the action program for the common issues in the mining sector, analysis and proposals were performed about the various components in connection with mining activity. Particular points that should be emphasized are agreement on mining strategy by participation of extensive stakeholders including administrative government offices, private sectors and local communities, and clear and definite apportionment of those roles and responsibilities. Improved communication and co-operation are needed between the different components of the ministry (METE: Ministry of Economy, Trade and Energy) for the detailed step-by-step implementation of the Master Plan. Even in the case of EITI (Extractive Industries Transparency Initiative) that is advancing now, very detailed implementation of action to improve the transparency of business transactions is indispensable to the realization.

Albania has a strong comparative advantage for the development strategy of promising minerals, chromium, copper, nickel and non-metallic minerals such as construction stone. It is chromium that development is progressing most out of these, and Albania can develop a large advantage paying attention to the point that large scale excavation by big investment is not necessarily an advantage economically; from characteristic of existence of the ore reserves that there are many small-scale deposits is expected. Paying attention to the potentiality of mineral resources, investment of exploration or development came to be realized at copper and nickel resources from overseas. It is required to apply a strong and fair commercial framework so that these investments may be successful, resource may be developed and it may contribute to the national revenue of Albania. If one example of a success is established, the investment in development of mineral resources of Albania will attract attention further from now on.

Although it is a matter of course that the strategy of the sector, or the role of the authority governing the sector, are important for promotion of the mining sector, lack of finance and capacity required for supporting sufficient activities needs to be pointed out. As it is defined in the relevant laws of each organization that AKBN and AGS affiliated with the METE are entitled to receive reserved amount from mining origin revenue (e.g. mineral rent) including royalty, these organizations can expect a

favourable turn of financial matters, once mining production is realized and the mineral rent is secured into national budget. Probably, this is the greatest outcome expected from implementation of EITI. Although many challenges are expected throughout the course of implementation of the Action Program on common issues in the mining-sector proposed by the Study, it is most worthwhile to strongly address transparency and accountability.

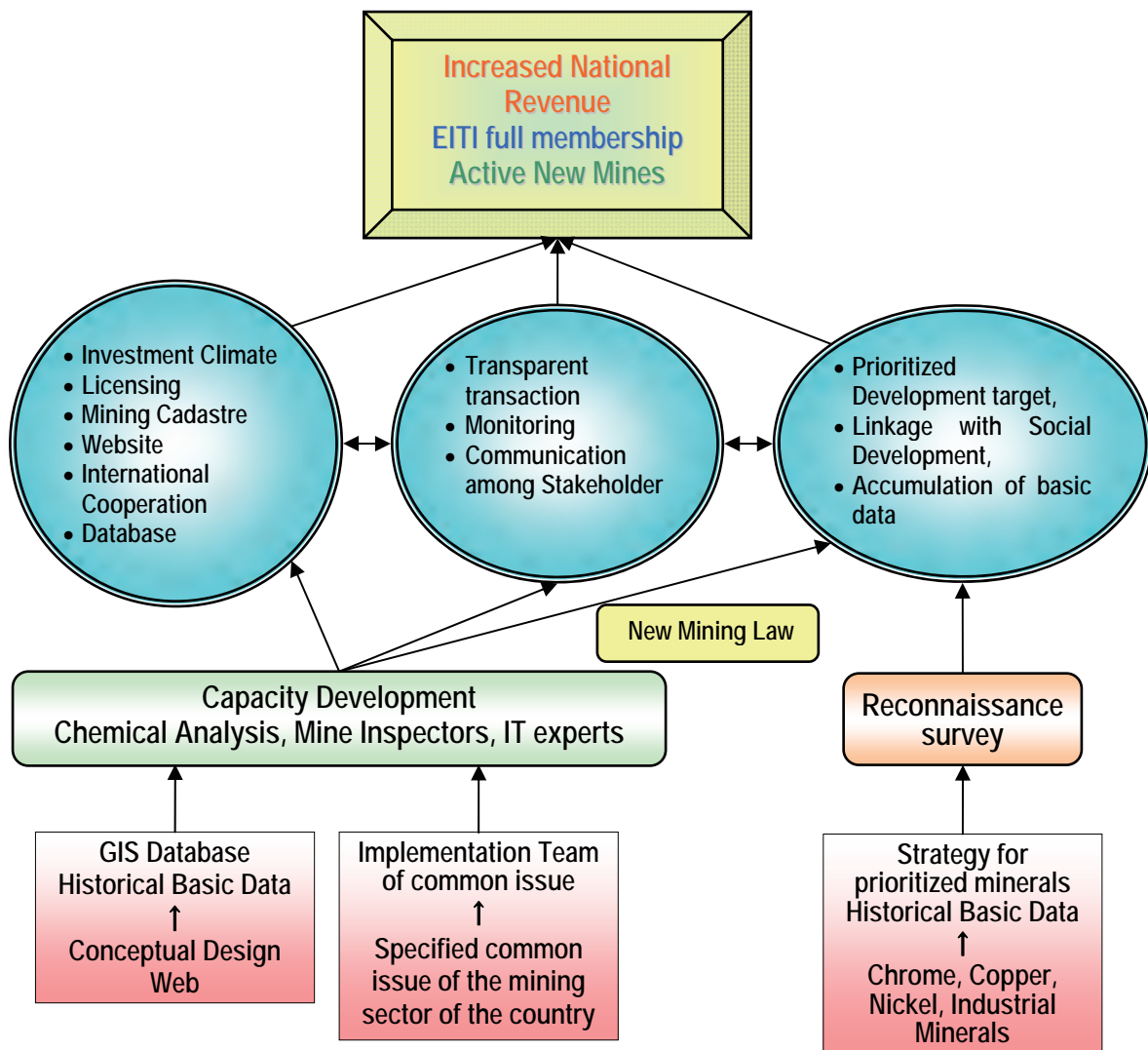


Figure 8.1
Concept of the Master Plan for the Development of the mining sector of Albania

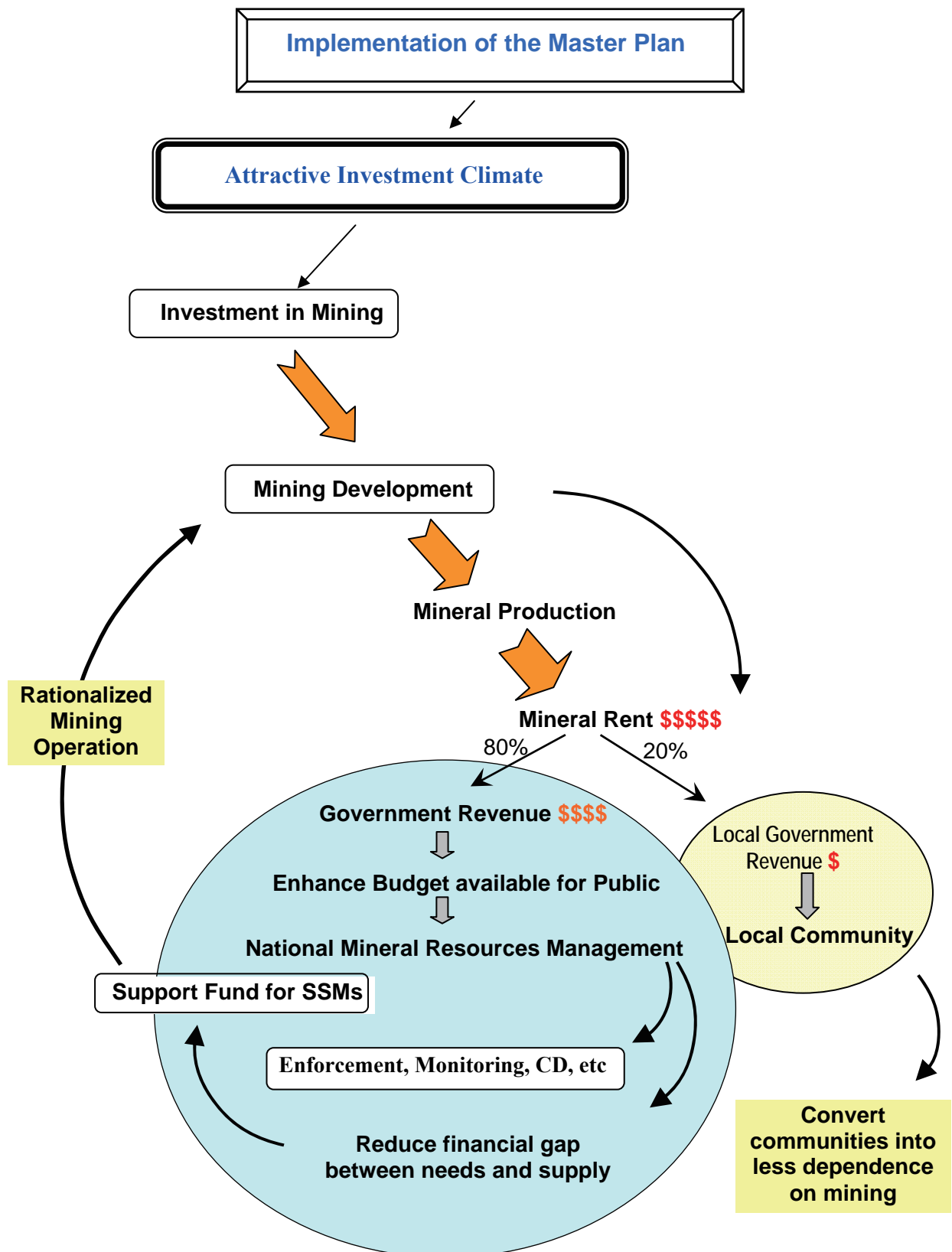


Figure 8.2 Mining Sector Development and Mineral Rent

Table 8.1 Master Plan for Promoting the Mining Industry

	2011	2012	2013	2014	2015	2016
Institutional and Legal aspects						
Secondary legislation.						
3-year strategy, 1-year action plan.						
Set up strategy implementation team.						
Implementation of EITI.						
Set up Advisory Panel to improve stakeholder co-operation.						
Recruit to strengthen capacity in AKBN / AGS.						
Marketing actions to attract foreign investment.						
Training programmes – strengthening capacity AKBN / AGS.						
Development strategy – Chromite						
Develop integrated systems (mining–concentrating–smelting)						
Strengthen enforcement of existing contracts.						
Reduce the number of licences for exploitation.						
Identify areas for competitive tendering of large concessions.						
Develop plan to optimise system of concentration plant.						
Set up co-operatives for small-scale mining operators.						
Tendering of large scale concessions.						
Expansion in large-scale chromite mining operations.						
Development strategy – Copper						
Improve efficiency of existing mines.						
Improve efficiency of existing concentration plant.						
Basic exploration (e.g. airborne geophysical surveys) / modelling.						
Recover of Zn and Pb (as well as Cu) to add value.						
Reprocess tailings to recover Zn and Pb.						
Promotion of exploration by private companies.						
Tendering of concessions.						
Expansion in copper mining operations.						
Development strategy – Nickel						
Develop detailed plans for Ni treatment facility in Albania						
Encourage private sector interest in investment in extraction facility						
Encourage private sector mining activities (Lura-Kukes)						
Tendering of contract for treatment facility.						
Tendering of large scale concessions.						
Construction of treatment facility.						
Expansion in large-scale nickel mining operations.						
Operation of treatment facility.						
Database and GIS						
Procedures for co-operative work on GIS/databases (AGS/AKBN)						
Detailed design, customise software.						
Development of GIS on a step-by-step basis.						
Recruitment to form GIS teams in AGS and AKBN.						
Detailed training and capacity development on GIS						
Environmental, Health & Safety, Social aspects						
Mechanism to strengthen co-operation (METE/MEFWE)						
Plan for improving health & safety issues of small-scale mining.						
Recruit to increase number of monitoring inspectors.						
Training and capacity development for monitoring.						
Assessment study to prioritise mining pollution hotspots.						
Remediation of historical mining pollution hotspots.						

- To be implemented by the government with ordinary budget (plus minimal fund)
- To be implemented by the government with specially allocated budget (budget arrangement is a critical condition)
- To be implemented by close communication with Government and Private Sector
- Feasibility consideration should be supported by the fund of government; further industrial implementation should be done by the investment from private sector