

## Mineral Resources and Economic Development Of Nepal

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### Abstract

Mineral resource is the mineral deposit consisting of useful concentration that may or may not exceed economic cost for obtaining the valuable minerals. The information was collected through Secondary data. The data collected from different sources have been analyzed on the basis of these classification using both analytical and descriptive methods. The technological process, the needs of the economy and prices in the market, depends on whether and when the rock/mineral becomes raw material. The study aims to explore Mineral resources is important for economic development of Nepal. Mineral Resources has great importance for improvement in the economic status household. This research also shows the problems of mineral Resources. Mineral Resources has positive change in the overall socio- economic status and overall economic development of Nepal.

**Key Words** : economic growth, development, mineral resources, rock.

### Introduction

A mineral is a naturally occurring substance, represent able by a chemical formula, that is usually solid and inorganic, and has a crystal structure. Minerals are identified with eight main properties: crystal habit, luster, hardness, cleavage, break, color, line, and specific gravity. There is usually no specific diagnostic property that can be used to classify a mineral sample on its own. Mineral resources are the key material basis for socio-economic development. Statistical results show that more than 95% of energy used by mankind, 80% industrial raw materials and 70% raw materials for agricultural production are from mineral resources. The mineral is defined as naturally occurring inorganic solids. They are usually chemical compound composed of two or more elements. It possesses unvarying physical properties, notably a distinctive crystalline form a particular structure, or a mode of fracturing (Zimmermann, 1951). The mineral can be considered as a potential resource for the prosperity of Nepal. It is mainly due to Nepal is regarded as the richest in mineral resources. Some resources, like iron,

copper, lead, zinc, cobalt, nickel, quartzite, dolomite and limestone are widely distributed across the country (Poudel, 2019).

The mineral deposit consisting of useful concentration may or may not exceed economic cost for obtaining the valuable minerals. The technological process, the needs of the economy and prices in the market, depends on whether and when the rock/mineral becomes raw material. For example, for road construction mineral raw material is stone recovered from the quarry, and the stone blocks broken away from the rock mass for the construction of stone structures or processing into polished slab. The mineral/ore deposits are formed in the Earth's crust by different geological processes over time, and accumulate minerals in such quantities and qualities that it is technologically possible to mine and economically profitable to designate it as "Ore" and "Ore Body." In such condition the mineral resource becomes mineral or ore reserve.

Mineral resources are the key material basis for socio-economic development. Statistical results show that more than 95% of energy used by mankind, 80% of industrial raw materials and 70% of raw materials for agricultural production are from mineral resources. The main aim of this research want to show the mineral resource has positive contribution for economic development of Nepal.

### **statement of the problems**

Mineral resources is the importance resources for economic development. It contribute for income generation, poverty reduction, Industrial development and other various sector. In this research shows the various kinds of mineral deposit of Nepal and its contribution for economic development. so, This study tries to find out answers to the following questions.

what is the potentiality of mineral resources in Nepal?

how mineral resources contribute economic development of Nepal?

### **Objectives of Research**

The general objective of the study is to observe the potentiality, Importance and problems of mineral resources for development in Nepal. So the specific objectives of the study are listed as follows :

To find out the mineral resource potentiality in Nepal .

To show the importance and contribution of mineral resources for economic development of Nepal.

### **significance of the study**

This study has highly significance to show the condition of mineral resources and its importance for economic development of Nepal. Mineral resources has highly importance not only in one sector but also importance on industrial, agricultural, tourism and other various socio economic sector. It is a basic pillar of economic development and it is the most important natural resources that determine a country's industrial and economic growth by supplying raw materials to the economy's primary, secondary and tertiary sectors. The major significance of the study is mineral resources has positive contribution for economic development of Nepal .

### **Research gap**

The main purpose of this study want to show the possibility, importance and problems of mineral resources and it's contribution for economic development of Nepal. The previous research only explore introduction, problems and importance of mineral resources but not clearly explain the contribution of mineral resources of Economic development of Nepal. so, this study shows the contribution of mineral resources for economic development of country.

### **Research Methodology**

In this article, secondary sources of information are used. Secondary sources of information obtained from the website of central Bureau of statistics of Nepal (CBS), various books,, Articles to obtain the information about Mineral Resources. In this research qualitative research *methodology* used to describe importance, problems and possibility of mineral resources. This method is very useful to apply techniques, procedures and analyze information regarding a mineral resources for economic development Of Nepal.

### **Result and discussion**

#### **History Of Mineral Extraction In Nepal**

Nepal has over 200 years long history of indigenous mining activities. Before 1951(2007BS) Nepal was one of the exporters of iron and copper to Tibet and cobalt to India. But after the change in the government in 1951 such mining activities were gradually closed because of change in the policy of the new government, unavailability of charcoal for smelting, technical difficulties in mining at depth etc.

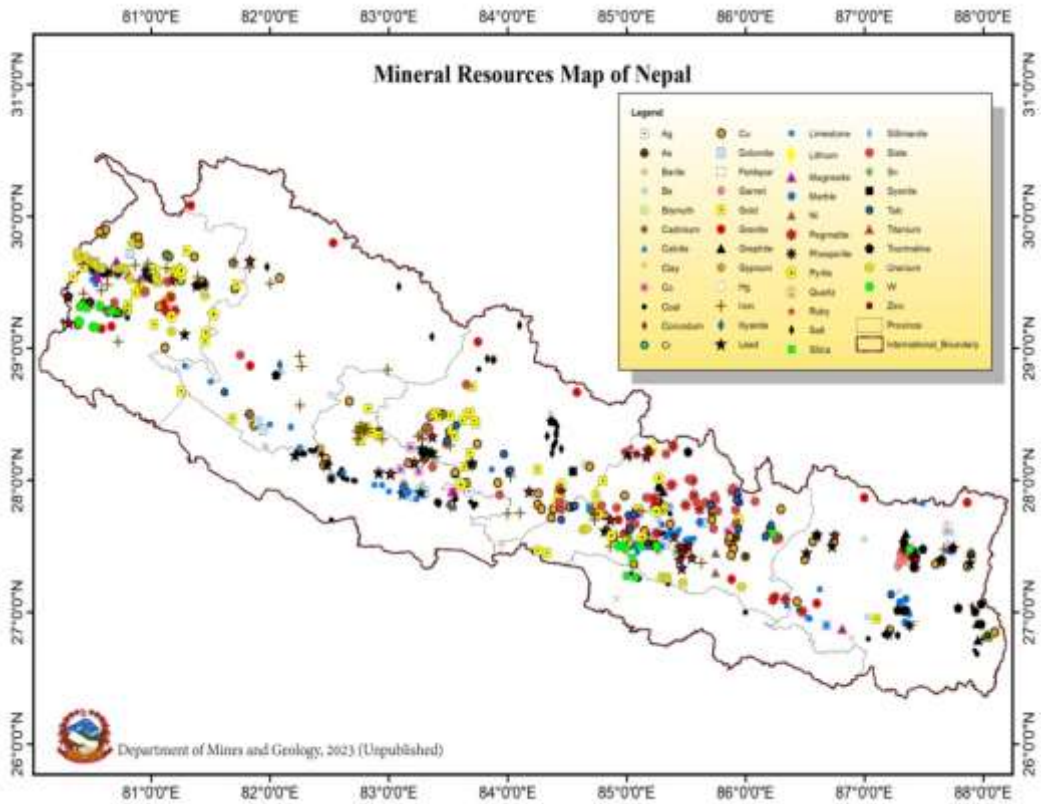
The history of mining and mineral extraction in Nepal is believed to be around 2 centuries old. Small amounts of iron, copper, lead, zinc, cobalt, nickel and gold have been

mined in Nepal since prehistoric times. The importance of the mineral sector in Nepal is also evident from the fact that old mine pits, audits, waste places and remains of mine tailings found in many places, and villages named after mineral names such as Tama Khani (copper mines), Falam Gau (iron village), Sisha Gau (lead village), Khani Gau (Mines village) or Sun Chahari (gold falls). The systematic study of mines across the country began in the 1950s. Later, after the establishment of the Department of Mines and Geology in 1976, more systematic exploration, evaluation and excavation of minerals have been taking place.. Currently the company is in the process of mine development to exploit iron ore in near future. Now GON/ DMG is in the process to mine Dhauwadi – Pokhari hematite ore deposit in Nawalparasi for iron and also continuing petroleum and natural gas exploration in Dailekh.

As per the Nepal Mines and Minerals Act 1986, the classification of minerals is done by type and importance:

- **Type:** Metallic/non-metallic/fuels/thermal springs
- **Importance:** Very-important/important/valuable/ordinary

Nepal has five geological units with their own geological features and mineral resources. In Terai and Siwalik/Chure, there is possibility of petroleum deposits and construction aggregates. Metallic minerals, industrial minerals, precious and semi-precious stones and coals are expected in the Lesser Himalaya. various mineral deposit of Nepal shows in figure:



### Current situation of available Mineral Resources In Nepal

Nepal has favorable geography for various minerals (metallic, non-metallic, and fuel). As many as 63 minerals have been identified in Nepal. In 2010/11, 80 mines and quarries for 12 different minerals were in operation. Of these, 29 are limestone quarries and 6 gem mines. In 2011, mines and mineral-based industries contributed 2.4% to Nepal’s GDP.

Nepal has an abundance of minerals used in industrial and construction works including:

- Limestone (most abundant)
- Coal
- Talc
- Clay red
- Granite and marble (identified, but not extensively explored)
- Coal (with mines in Dang, Salyan, Rolpa and Palpa districts)
- Gold (alluvial gold was exploited in the past and there is potential for primary gold mining)
  
- Semi-precious and precious stones (tourmaline, aquamarine, ruby and sapphire)

The Department of Geology and Mines has discovered 1.07 billion tons of limestone deposits, of which 540 million tons are proven, 110 million tons are semi-proven, and 420 million tons are feasible deposits. These have been discovered in different districts including Udayapur, Dhankuta, Sindhuli, Makwanpur, Lalitpur, Dhading, Syangja, Arghakhanchi, Surkhet, Dang, Salyan, Baitadi and Palpa.

Figure: Mines and Minerals sector division

Metallic Minerals	Non-Metallic Minerals	Fuels Minerals	Gemstones	Decorative and Dimension stones	Construction Minerals
<ul style="list-style-type: none"> <li>• Iron</li> <li>• Copper</li> <li>• Zinc and Lead</li> <li>• Cobalt</li> <li>• Nickel</li> <li>• Gold</li> <li>• Silver</li> <li>• Tin</li> </ul>	<ul style="list-style-type: none"> <li>• Limestone</li> <li>• Phosphorite</li> <li>• Magnesite</li> </ul>	<ul style="list-style-type: none"> <li>• Coal</li> <li>• Petroleum</li> <li>• Natural Gas</li> <li>• Methane Gas</li> <li>• Hot Springs</li> </ul>	<ul style="list-style-type: none"> <li>• Tourmaline</li> <li>• Beryl/ Aquamarine</li> <li>• Garnets</li> <li>• Kyanites</li> <li>• Rock crystals</li> </ul>	<ul style="list-style-type: none"> <li>• Marbles</li> <li>• Granites</li> <li>• Quartzite's</li> <li>• Slate</li> </ul>	<ul style="list-style-type: none"> <li>• Rocks</li> <li>• Basalt</li> <li>• Colored sandstone</li> <li>• Phyllite, Slates, Flaggy quartzite and schist</li> </ul>

Source: Department of Mines and Geology, 2015

## Opportunity of Mineral Resources

### Fuel minerals

In recent times, the western part of Nepal has witnessed gas and oil seepage, confirming the presence of oil and natural gas in Nepal identified. Some petroleum companies have already sought licenses.

### Metallic minerals

Nepal has more than 20 million metric tons of ore reserves in more than 80 locations. Copper occurs in Nepal in more than 107 locations.

### Industrial minerals

Recent studies have shown that Nepal may have 2.5 billion metric tons of cement grade limestone. Nepal has an estimated potential of 5 billion metric tons of dolomite and 180 million metric tons of high grade magnetite. IBN has given foreign direct investment approval to 2 international cement companies to establish cement plants in Nepal.

## **Importance of Mineral Resources in Nepal**

Mineral Resources has great importance for economic and social development of Nepal. Some of the major importance of Mineral Resources are :

### **Industrial development:**

If the mineral resources can be extracted and utilized, mineral based industries can be established and expanded. Petrol, diesel, iron, coal, etc. are minerals for industries. This accelerates industrial development.

### **Increase in employment:**

The existence of mineral resources provides employment opportunities to the people. Mineral resources help to establish new industries where skilled and unskilled people can get employment opportunities.

### **Agricultural development:**

Some mineral resources are used to make modern agricultural tools, machines and fertilizers, etc. They can be used for the modernization and commercialization of agriculture, which help to develop agriculture.

### **Source of energy:**

There are various sources of energy like petrol, diesel, natural gas, etc. in Nepal. If these minerals can be extracted, they can provide the necessary energy for industrial sectors and household use.

### **Development of self-dependency:**

If we develop mineral resource based industries, we can create more jobs with quality products. We will be independent when industrialization occurs with the uses of mineral resources.

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## **Problems of Mineral Resource Development in Nepal**

There is no doubt that we have a large variety of minerals and some of them are available in large quantities. But mineral development in Nepal is handicapped by various problems. Minerals deposits that have been identified are remaining unrestricted.

Some major problems of mineral resource development in Nepal can be explained as follows:

**Lack of capital:**

Nepal is a poor country and to extract the mineral resource, a large quantity of capital is required. The extraction of minerals needs a large amount of capital investment but the shortage of such capital has become the greatest problem in Nepal.

**Lack of advanced technology:**

The utilization of mineral resources requires advanced technology and efficient technical manpower. But technical manpower and technology are lacking in Nepal. So, Nepal is dependent on foreign experts who are very expensive.

**Lack of infrastructures:**

The transportation and communication are the most essential infrastructures required for extraction of mineral resources. But such facilities are not available in hilly and mountain regions where major mineral deposits are supposed to have been located.

**Lack of research:**

Identification of new places with definite capacity of mineral deposits requires scientific research in different parts of the country. But, Nepal has not undertaken adequate research due to lack of capital & trained manpower.

**Shortage of energy:**

The sources like coal, petrol, diesel, etc. are the prerequisite for the extraction, purification & utilization of mineral resources. However, the supply of energy is still inadequate in Nepal.

**Defective government policy:**

The government has not been able to adopt an appropriate mineral policy. Government has no clear policy for the development of mineral resources due to frequently changing governments. Therefore, foreign investors are not encouraged to invest their capital in Nepal.

There are other problems of mineral resources in Nepal such as low rate of Capital formation, the limited scope of the market, growing political instability, lack of people's participation, etc.



## **MINERAL BUSINESS SECTOR AND INVESTMENT**

The mines and minerals business is concerned to be the best 10 sectors to invest in Nepal taking the following things into consideration:

- Nepal prides itself on the presence of a huge amount of minerals despite being strewn all across its Himalayan vicinity.
- There is less number of mineral extracting businesses and less feasibility study has been done on the matter.
- The outputs obtained from some business endeavors on the field do not give satisfactory results.
- There are ample opposites for the investors to invest in industries like cement, industrial lime, dead burnt magnetite, agriculture lime, brine water, coal, limestone, talc, clay etc.
- Investment in the potential mineral resources has proven to be highly rewarding.

### **Investment Incentive**

Mines and mineral sectors of Nepal need to attract more private investments in order to set up Value Add Technology for precious and semi-precious minerals.

The Government of Nepal has come up with some really attractive investment incentives in income tax category to gain more private investments, some of which are:

- Applicable tax rate of 20%
- In case of a special industry that provides direct employment to at least 100 Nepalese nationals during a whole year, the effective tax rate shall be 70% of applicable tax rate.
- Special industries established in least developed, underdeveloped and undeveloped regions applicable tax rate shall be 10%, 20% and 30% of normal tax rate for the first 10 years respectively.
- Special industry with capital of NRs. 1 billion and providing direct employment to more than 500 persons can enjoy 100% exemption for the first five years from the date of operation of business and 50% concession for the next 3 years.
- Losses can be carried forward up to 12 years instead of 7 years for petroleum extracting industries.

### **Conclusion**

Nepal does have an abundance of minerals available in its natural resources. It's just a matter of fact that Nepal hasn't been able to utilize these resources. Very less number of mines operating in Nepal are legal, others are all used for smuggling of our

valuable minerals. If Nepal wants to develop the mineral resource industries then the problem of illegal smuggling too needs to be addressed. If the government is able to make proper utilization of resources without deteriorating the environment, then mineral resource industries would be a great source of national income for the economic growth and development of the country. Mineral resources, such as limestone, coal, iron ore, copper, and gold, contribute to Nepal's Gross Domestic Product (GDP) by generating revenue through mining activities. The extraction and processing of these minerals create employment opportunities and stimulate economic growth.

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