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# Identification and the strategic role of stakeholders along mining value chain in Pakistan

**Asghar, Zeeshan**

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# IDENTIFICATION AND THE STRATEGIC ROLE OF STAKEHOLDERS ALONG MINING VALUE CHAIN IN PAKISTAN

**ZEESHAN ASGHAR**

**A research project submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in fulfillment of the requirements for the degree of Masters of Engineering**

**Johannesburg, 2015**

**DECLARATION**

I declare that this thesis is my own unaided work. Where use has been made of the work of others, it has been duly acknowledged. It is being submitted for the Degree of Masters of Engineering in the University of the Witwatersrand, Johannesburg. It has not been submitted before in any form for any degree or examination in any other University.

Signed:

_____

Zeeshan Asghar

This _____ day of _____ 2015

**ABSTRACT**

Pakistan set up two national mineral policies in 1995 and 2012. The first mineral policy was introduced after the discovery of Thar Coal to address the issues regarding mineral assets. After twenty years, it was observed that the National Mineral Policy of 1995 could not address the core issues faced by the mineral industry of Pakistan and there came a need to address the gaps in the policy. Therefore, a new mineral policy with new aims and objectives was introduced in 2012.

Furthermore, it was identified that one of the major gaps of both mineral policies was that they were made without the realization and consultation of stakeholders along the mining value chain. With the identification and assessment of the strategic roles of stakeholders in the mineral industry being vital for the formulation of a mineral policy, the purpose of this research was to identify and analyze the role of stakeholders in the mining value chain in Pakistan.

Forthwith, a critical review of the mineral policies in general was carried out in this report to analyze the contributing factors towards the failure of the first mineral policy. The result of the second mineral policy was not analyzed because no major FDI has been injected in mineral sector yet. The results of the absence of stakeholders were also compared with the expected outcomes of the mineral policy and the disparities were identified. Strategic and tactical interactions of stakeholders were analyzed to create value loops and virtuous cycles and the presence of positive and negative boosters were also identified. After analysing Pakistan's business environment, a stable business model was created in order to facilitate the formulation of a stable, transparent and equitable mineral policy.

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This research work is dedicated to Almighty Allah. I cannot express how grateful I am to Him. He has never left me alone for a day as He guided me through life's ups and downs. He has blessed my life with the realization of right and wrong and given me the strength to defend the right in every sphere of life.

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## KEYWORDS AND ABBREVIATIONS

| | |
|---|---|
| APT | Additional Profit Tax |
| BSI | Balanced Scorecard Institute |
| CIL | Center for Intercultural Learning |
| CPI | Corruption Perception Index |
| DG | Directorate General / Director General |
| EBIT | Earnings before Interest and taxation |
| FATA | Federally Administrated Tribal Area |
| GDP | Gross Domestic Product |
| GNI | Gross National Income |
| GoC | Government of Canada |
| GoP | Government of Pakistan |
| GoS | Government of Sind |
| GSP | Geological Survey of Pakistan |
| HES | Higher Education System |
| IofM | Institute of Manufacturing |
| IRR | Internal Rate of Return |
| KPK | Khyber Pakhtun Khuwah |
| MoD | Ministry of Defence, Pakistan |
| NGO | Non-Governmental Organization |
| NEPRA | National Energy and Power Regulatory Authority |
| NMP | National Mineral Policy |
| PIA | Pakistan International Airlines |
| PBS | Pakistan Bureau of Statistics |
| PMDC | Pakistan Mineral Development Corporation |
| PPP | Purchasing Power Parity |
| SAIMM | Southern African Institute of Mining and Metallurgy |
| SBP | State bank of Pakistan |
| SCP | Supreme Court of Pakistan |
| SWOT | Strength Weakness Opportunity Threat |
| TCF | Trillion Cubic Feet |
| TOE | Tons of Oil Equivalent |
| UGC | Underground Gasification of Coal |
| UK | United Kingdom |
| UN | United Nations |
| UNDP | United Nations Development Programme |
| USGS | United States Geological Survey |
| WAPDA | Water and Power Development Authority |
| WoT | War on Terror |
| WB | World Bank |

## GLOSSARY OF TERMS

1. **Collaborative Governance**: Form of governance in which all parties, stakeholders and participants collectively participate and empowered in Policy-making and policy decision.
2. **Corruption Perception Index (CPI)**: CPI ranks the countries based on the perception that how corrupt their public sector is. It ranks 0 (very corrupt) to 100 (very clean).
3. **Dutch Disease**: Deindustrialization of national economy after the discovery of tradable natural resource and rise in value of local currency.
4. **Gross National Income (GNI)**: - It is the total output of domestic and foreign goods claimed by the country.
5. **Halaal:** food which Muslims are permitted to eat and drink.
6. **Special Economic Zone (SEZ):** A modern economic zone within the borders of the country. In SEZ, the laws governing the trade are comparatively relaxed than other parts of the country.

# CHAPTER ONE

## 1. Background, Literature Review and Aims of Research

### 1.1 Introduction

Natural resources are one of the pivotal pillars on which strong economic growth rests. In the times of Adam Smith and David Ricardo, natural capital was considered as a cutting edge for a country (Malik, 2012) and natural capital was considered an important source of wealth around the world (Kronenburg, 2004). In the past it was observed that many of the countries with vast mineral resources seemed to have accelerated economic growths than the countries which lacked natural capital. However, many other studies have shown that mineral resources are not necessary for the economic growth. The economies of the USA and UK did not develop on mineral resources, although minerals had a significant share in their growth. Asian countries like China and India developed their economies based on minerals. Also, many other European countries developed their economies by starting from a raw materials basis and moved on to manufacturing and services sector (Kronenburg, 2004).

According to Minnitt (2014), "*GDP based on mineral resources is a fake GDP and the growth cannot be sustainable*". However, mineral resources are important for economic growth due to their peculiar investment patterns, magnitude of operations, creation of wealth and employment. Pakistan is richly endowed with diversified mineral resources. The complete mineral profile of the country is shown in Table 1.1.

Table 0.1: Major mineral deposits in Pakistan. Source: GSP (2014)

| Mineral | Location | Deposit size (Approximately) |
|---|---|---|
| Gold | Riko Diq Sandak, Quetta, | 1656 Million Tons |
| Copper | Riko Diq, Sandak, Quetta, Chaghai | 6000 Million Tons |
| Iron | Diband, FATA, Baluchistan, Kala Bagh, Chitral, Khuzdar, Chulgari | 1400 Million Tons |
| Coal | Thar, Sind, Badin, Quetta, Machh, Zhoab, Salt Ranges in Kohistan | 186 Billon Tons |
| Natural gas | Thar, Sui, Zhoab, Khuzdar, Dalbandin | 31.3 Trillion Cubic Feet |
| Silver | Baluchistan, KPK | 618 Million Tons |
| Lead Zinc | Lasbela-Khuzdar region holds great promise | 23.72 Million Tons |

| | | |
|---|---|---|
| | for further exploration of deposit | |
| Manganese | KPK and Baluchistan | 0.597 Million Tons |
| Chromites | Zhob District in Baluchistan, specifically in Muslimbagh, Khanozai, Nisai and Gwal | 2.527 Million Tons |

Despite these vast mineral deposits, the mineral sector has not made the desired impact on Pakistan's GDP (World Bank, 2013). Total natural resource rent[1] of Pakistan was 3.7% of GDP in 2012, which was 0.7% less than the previous year. In order to ensure the increased contribution of the mineral sector to Pakistan's economy, the National Mineral policy was introduced, as a guide.

For a successful policy-making process, extensive stakeholder engagement and participation is advocated widely. The quality of knowledge base, which is required for the policy-making development, improves with the involvement of stakeholders (Hoekstra, 2011). Pakistan's uncertain political and socio-economic environment needed extensive engagement of stakeholders for policy development process. However, it was identified that the mineral policy-making process in Pakistan lacked stakeholder engagement, which has resulted in the decreased foreign investment in its mineral sector.

This report seeks to identify the critical stakeholders and discuss their strategic roles in the mining value chain in Pakistan. A critical review of the past mineral policies would be done with a particular focus on stakeholders' absence. In addition, the results of stakeholders' absence and the impacts on mineral industry in Pakistan would also be discussed. At the end, the Thar coal case study would be analyzed in light of stakeholders' absence in the development of the Mineral Policy of Pakistan. A proposed business model would be presented for the Mineral Industry of Pakistan in the current challenging environment.

[1] Natural resource rent is equals to value of capital services flows rendered by the natural resources or their share in gross operating surplus.

## 1.2 Literature Review

### 1.2.1 Mining Value Chain

The Value chain concept was presented by Michael Porter in "Competitive Advantage" in 1985. Value chain is the set of activities that start with inputs (raw materials), processes and additional activities, which convert inputs into finished products. The processes and activities add value to the product at every other stage (University of Cambridge, 2015). Inputs, value-addition processes and outputs require acquisition of factors of production such as land, labour, capital, organization and equipment. Cost-efficiency and profits are determined by the value chain's activities and role players. Competitive advantage can be derived from the operations by arranging all the value-adding activities in a specific order to satisfy both consumers and producers (Vorster, 2001 ). The Value chain idea was based on the process review of an organization with specific inputs, process for transformation and outputs (Porter, 1985).

Every organization is engaged in the activities of transforming inputs to outputs. These activities are classified into primary and secondary activities.

**a. Primary Activities in Value Chain**

1. **Inbound Logistics:** It involves all activities from acquiring the inputs, relationship with suppliers up until the start of transforming process.

2. **Operations:** These start from the end of inbound logistics and include all activities for the transformation of inputs into outputs.

3. **Outbound Logistics:** It starts from the end of the transformation process to the end of the distribution of products and services phase.

4. **Marketing and Sales:** This phase includes the selling of products, facilitation of buyers and dissemination of information regarding the products.

5. **Services:** It includes all the activities needed to keep the product in working conditions after it is sold and delivered.

**b. Secondary Activities**

1. **Procurement:** It includes all the activities relating to the acquisition of resources of all kinds. These resources include raw materials, plant and equipment and other factors of production.

2. **Human resource management:** It includes all the activities starting form recruiting, hiring, training and developing the personnel.

3. **Technological Development:** It comprises of all the technological advancement and its implication in the transformation of process. It supports value chain activities to optimize their level of output and efficiency.

4. **Infrastructure:** It binds different activities and links together to form an operation. It consists of different departments, which carry out unanimous functions towards the attainment of organizational goal. For example human resources (HR), operations, marketing and finance. (University of Cambridge, 2014).

Porter's value chain combines both Primary and secondary activities (see Figure 1.1).

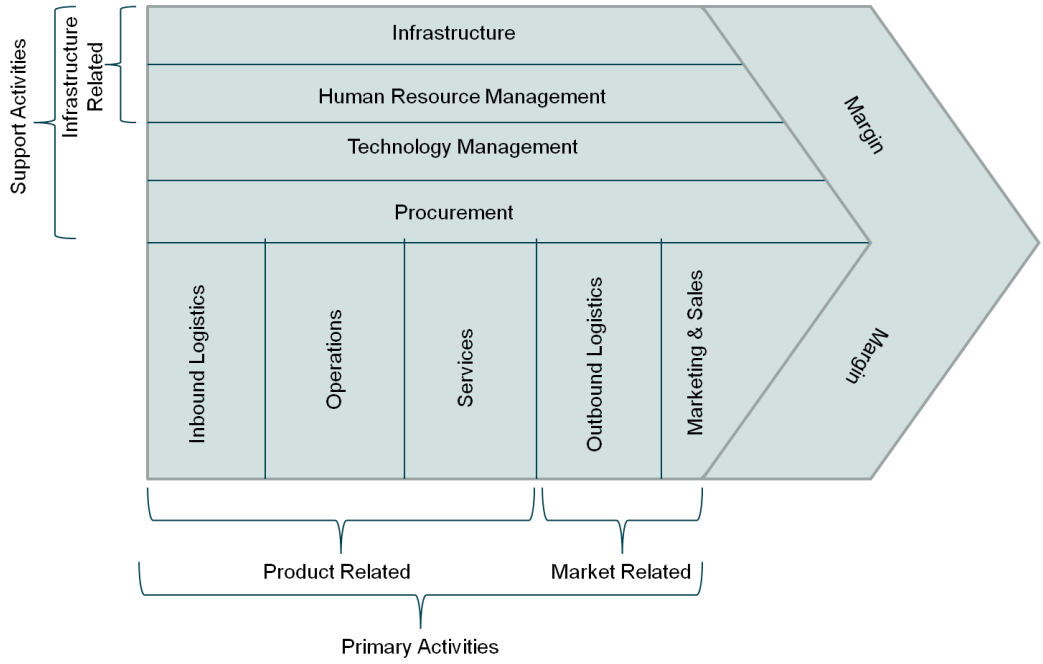



Figure 0.1: Porter Value Chain. Source: Porter (1985)

However, mining value chain or extractive industry value chain is different from Porter's generic value chain. Owing to the unique operations of mining, its value chain is more focused on operations and transformation processes. As minerals remain in demand for consumption with little substitutes available, the mining value chain has different characteristics. In mining value chain, the focus is more on mining activities (Exploration and operations) with outbound and marketing activities being given lesser attention (Vorster, 2001). In today's mining operations, these activities are done by third party (Vorster, 2001 ).Long lead times for returns, hazardous working environments, huge capital investment, bigger infrastructure involved and high investment risks have made the mining value chain very complex and value-derivation very dicey.

Figure 1.2 describes a generic mining value chain. Activities involved in the mining operations are placed by keeping in view these operations. As mining involves huge magnitude of operations, every value-added activity can be further broken down into a separate value chain.

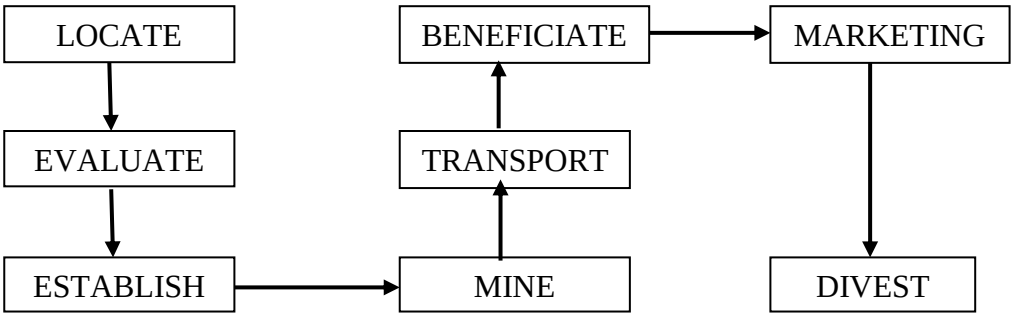



Figure 0.2: Generic mine value chain. Source: Vorster (2001)

In addition, Figure 1.3 shows the mining value chain, which is embedded into the Porter's model.

<table>
<tr><td rowspan="2"></td><td></td><td colspan="6">Primary Activities</td><td colspan="2"></td><td></td><td>Margin</td></tr>
<tr><td></td><td colspan="3">Inbound Logistics</td><td colspan="2">Operations</td><td>Outbound Logistics</td><td colspan="2">Marketing and Sales</td><td>Service</td><td></td></tr>
<tr><td rowspan="2">Supporting Activities</td><td>Mining Value Chain</td><td>Locate</td><td>Evaluate</td><td>Establish</td><td>Mine</td><td>Transport</td><td>Beneficiate</td><td colspan="3">Marketing</td><td>Divest</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="3"></td><td></td><td></td></tr>
</table>

Figure 0.3: Mining value chain and Porter Value Chain mapping. Source: Vorster (2001).

The model described above is not adequate to simulate real life situations due to inherent abstractions of mining operations. A more comprehensive and representative model is required to understand the specific situations and constraints of mining operations.

Porter's value chain mainly focuses on the operations and inbound logistics. The value of a product is added on each successive stage of the value chain. There are different methods of analyzing the generic value chain. Zachman analysis (1987) is one of the methods used in evaluating a specific value chain. John Zachman took the Porter's value chain model and embedded it on his framework. In the next section, the discussion would be about how Zachman produced his framework for analysis of a value chain system. Also, there are different tools which can be used to quantify the effectiveness of a system through Zachman analysis. In subsequent sections, these tools will be discussed.

### 1.2.2 Zachman Framework

One of the main objectives of mine operations is to enhance the production of mineral ores within the specific grade and quality, keeping in view the quantity demanded. This objective is achieved by establishing a conducive environment for mining operations (Vorster, 2001). Some notable aspects that have to be planned in mining

operations are ventilation, heat moderation, humidity control, dust control, temperature control, management of industrial and potable water, electric power, trained manpower and illumination arrangements in underground mines.

All of these aspects are arranged in mine planning phase and are subject to constraints. These constraints are inherent in mining operations due to factors like geology, type of operation, grade, legislation, labour and financial constraints. These constraints have a direct relationship with the production of a mine. Sometimes, this relationship is linear and the consequences are significant and vice versa.

Problems are normally approached with identification, setting a goal to eliminate the problem, plans to achieve the goal and solution of the problems. Zachman adopted the model and developed by asking six questions of what, how, where, who, when and why. He developed this classification scheme to develop a system for enterprises in 1987. Zachman's framework is used to classify the scheme which consists of six basic interrogatives. Instead of representing his framework with a step-by-step technique, he visualized a system from the perspective of different individuals in an organization (Hey, 1997). He had identified that in an enterprise, all of the personnel (players) look at the same information and work towards achieving the same goal. If players are placed in a column, then the things to be done for creation of a value chain will be placed in rows. Table 1.2 shows the generic Zachman framework.

Table 0.2: Generic Zachman Framework Source: Zachman (1987).

| Things / Players | What (things) | How (process) | Where (places) | Who (people) | When (time) | Why (motivation) |
|---|---|---|---|---|---|---|
| **Planner (Contextual)** | | | | | | |
| **Owner (Conceptual)** | | | | | | |
| **Designer (logical)** | | | | | | |
| **Builder (physical)** | | | | | | |
| **Sub contractor** | | | | | | |
| **Product** | | | | | | |

### 1.2.3 Tools for Analysis

For any successful policy or operation, there are different tools which are used for analysis of its effectiveness. To create a controlled efficient environment, the targeted results and vision of the organization must be attained. There are certain evaluative tools which act as milestones for the performance measurement of any organization or system. These tools help in analyzing the system qualitatively or quantitatively. The tools for analysis that will be discussed include scorecard analysis, as well as leading and lagging indicators.

#### 1.2.3.1 Scorecard Analysis

This strategic measurement system has been given importance for couple of decades now (Norreklit, 2000). One of the approaches to create a controlled efficient environment is by the use of a scorecard, which comprises of financial and non-financial measures. A balanced scorecard is a strategic control measurement tool, which aligns the individuals' goals with organizational goals (Norreklit, 2000). The measures of organizational learning and growth are the main drivers of the measurement tools for business processes (Kaplan, 1996). A scorecard is also used for the improvement of internal and external communication, as well as organizational performance against strategic goals (BSI, 2014). A balanced scorecard is a tool used for assessing the effectiveness of an organization, enterprise, or any policy. It was adopted after its acceptance in 1992 by a majority of companies worldwide (Kaplan, 2007). The effectiveness of any policy can be evaluated if it is measured (Kaplan, 1992)**.**

#### 1.2.3.2 Leading and lagging indicators in Policy

Leading indicators are those factors whose change has a direct effect on future events and they are output oriented. Leading indicators are easy to measure but difficult to improve. On the other hand, lagging indicators are factors whose change can affect the previous activities and they are input oriented (Corliss, 2014). In developing a balanced scorecard for evaluation of any performance measurement system, leading and lagging indicators are used as drivers. The pioneers of balanced scorecard - Kaplan and Norton (1992), called them "outcome measures" and "performance drivers" (Seath, 2014). Leading and lagging indicators are used in combination for

effective measurement of performance. Leading indicators without lagging indicators can only emphasize on short-term goals but often miss the broader strategic goals of organizations. Every milestone in policy is dependent on the combination of leading and lagging indicators (see Figure 1.4).

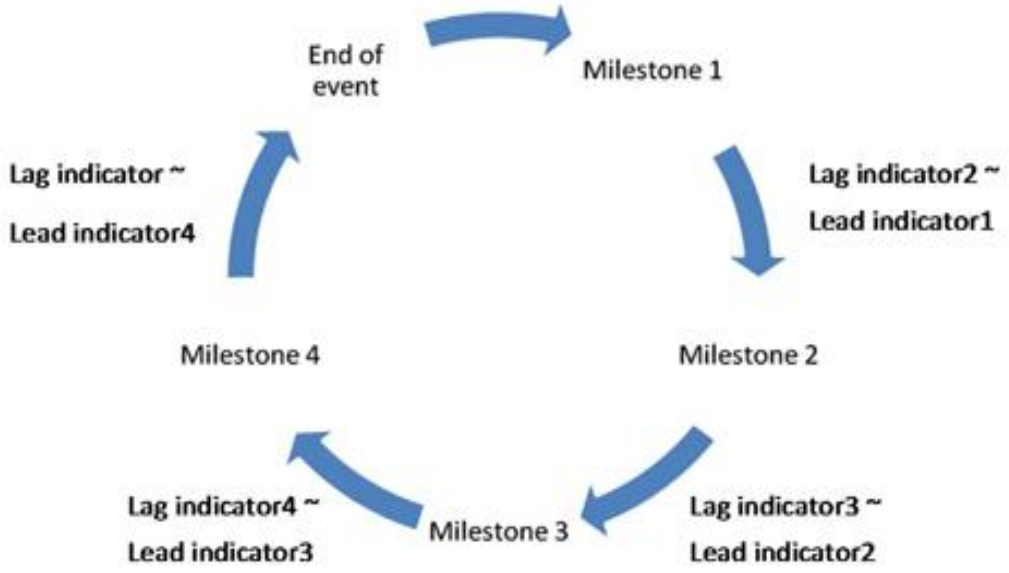



Figure 0.4: Dependency of leading and lagging indicators. Source: Kaplan (1992).

## 1.3 Justification of the study

The process of mineral policy development involves certain steps which are required to address the primary concerns of a country. Policies in a country should be able to address the fundamental issues which are specific to different economic sectors. There are three basic steps of policy-making and development (Mtegha, 2005). These are information gathering, information analysis and strategic development. The policy flow process is shown in Figure 1.5.

Pakistan got her independence on the 14th of August, 1947. After 68 years of independence, Pakistan has not gotten any notable benefits from its minerals. Since inception, the process of development of mineral policy had not gained momentum.
Pakistan's current legal framework for the mining sector consists of three different documents. These are:

a. **The Oilfields (Regulation and Development) Act, 1948:** At the time of Pakistan's independence in 1947, production of oil quantities was low. However, the majority of the rules currently governing the upstream oil and

petroleum sector were made pursuant to section 2 of the 1948 Act. The main purpose of the 1948 Act was to provide the fundamental basis for the legislation of the mineral sector, hence, providing the guidelines for the sector It was the need at that time to legislate the new mineral law for the newly-born state but development of mineral policy was not done till 1995.

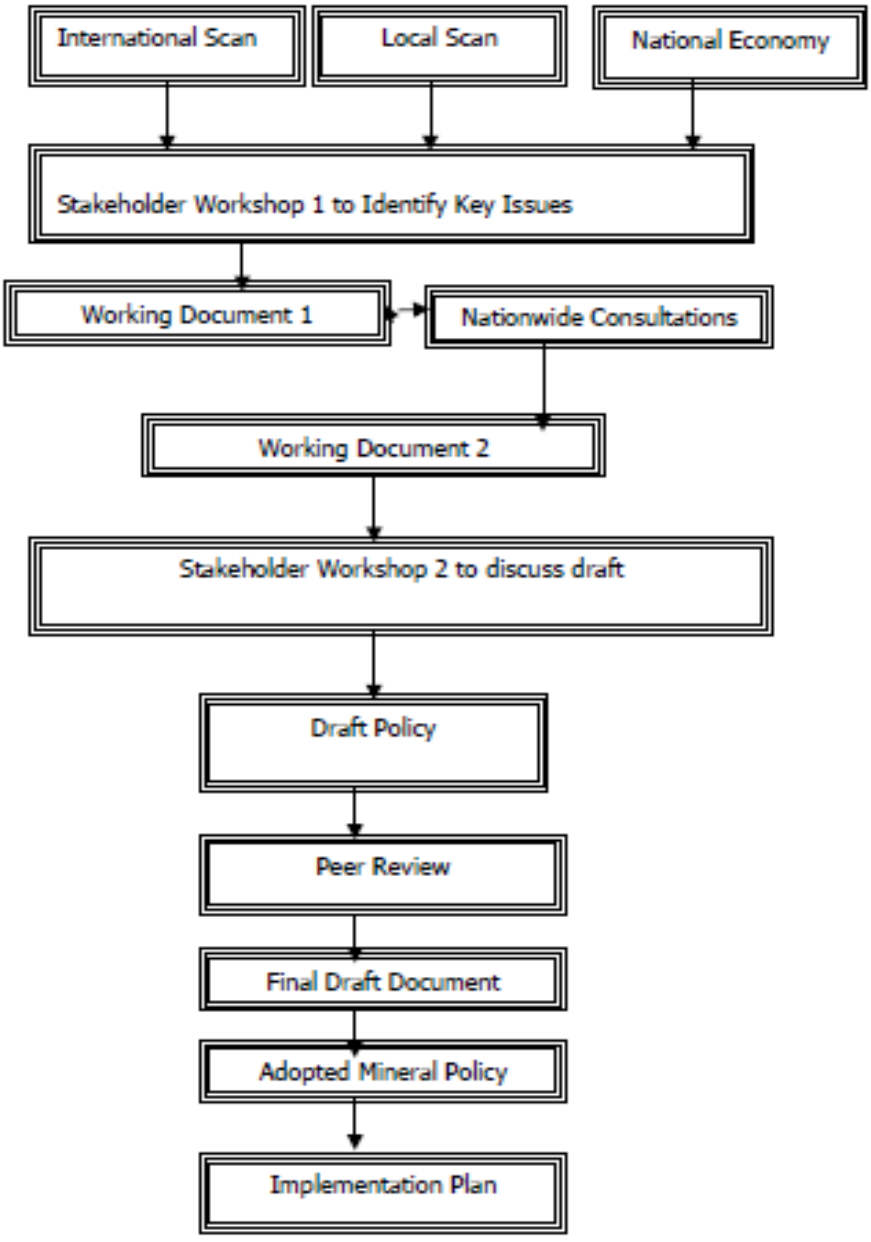



Figure 0.5: Mineral policy development process. Source: Mtegha (2005).

b. **National Mineral Policy 1995 (NMP-1):** Due to the political instability and chaos in the country, no mineral policy was drafted until 1995. With the growing interest of international mining companies in the country's mineral potential, it was imperative to regulate the mineral industry. Certain efforts were shifted due to inland legal disputes and weak contracting owing to non- implementation and absence of a solid policy framework. The neglect of the mining sector can be judged by the non-involvement of provincial ministers, chief ministers and prime ministers in the formulation of the National Mineral Policy of 1995. The Mineral policy of 1995 was formulated by the officials of ministry within the Department of Minerals. It was not circulated among other peers of joint interest for their input and constructive criticism. As a result, different conflicts arose among other functional departments e.g. ministry of law, land, labour, justice and power. There was also distrust among the various stakeholders as regards to the mineral fiscal/revenue issues. The only provincial feedback and involvement of stakeholders were mandatory biannual meetings, which were not given due importance (Dawn, 2012).

c. **National Mineral Policy 2012 (NMP-2):** The latest policy was drafted in 2011 and implemented in 2012 through a joint inter-provincial coordinated effort. However, the feedback from the NMP 2012 by the Ministry of Petroleum has not yet been presented to government. The mineral potential in Pakistan needs to be explored, developed and beneficiated for the facilitation of the economic growth of the country. After the announcement of NMP-2, the share of mineral wealth would had been increased. Unfortunately, the share of mineral wealth in 2014's GDP remained below 1%, which was an indication of non-effectiveness of the mineral policy. The main deficiency in the successful implementation of the policy is the exclusion of stakeholders and local communities and lack of coordination between them in the process of mineral policy development.

The deduction from both mineral policies is that the evasiveness among the policy-making officials, who developed the mineral policies, caused divergences in the application of the legal framework and impeded the implementation of National Mineral Policies in a homogeneous and uniform way. Therefore with a fair, transparent, equitable and effective mineral policy being the dire need of the country, the stakeholders along the combination of operations in Pakistan's industry, as well as their strategic role in the mining value chain, have to be identified. This will ensure that the smooth formulation of the effective and balanced mineral policy, its

implementation and avoidance of a reactive approach towards mineral industry is achieved.

## 1.4 Aims and objectives of the research

As mentioned previously, Pakistan is endowed with a vast variety of minerals but the country has not taken any significant advantage of these minerals. The presence of the world's 2nd largest coal reserves in Thar near Gwadar port in Arabian Sea could present a comparative advantage (GoP, 2014). Gawadar Port is a natural port, which can handle 50000 dry weight tons (DWT) at 12.5 meters depth. The presence of fairly dependable infrastructure could be made useful for the mineral extraction and exploitation thereby facilitating the comparative advantage to competitive advantage. In a generic value chain, all the value-adding activities are interlinked. These linkages make the dependency of one operation on the other, the source of competitive advantage (see Figure 1.6). This also holds true for the mining value chain where all the value-adding activities are linked with each other to derive the competitive advantage.

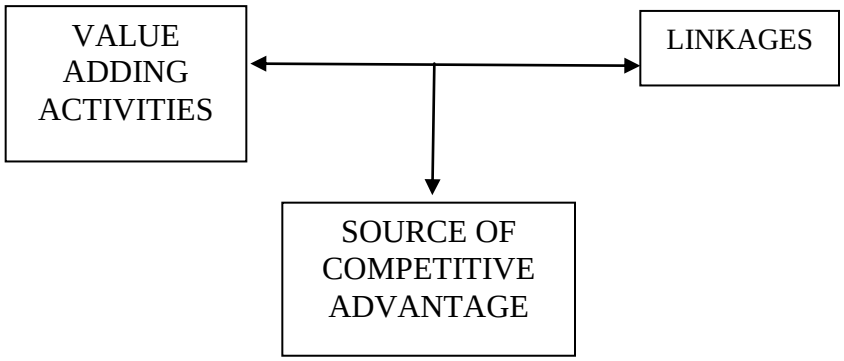



Figure 0.6: Competitive advantage. Source: Vorster (2001).

It is expected for any country with mineral endowments, its endowments should contribute to the attainment of the national objectives. Such national objectives could be poverty reduction, economic growth, reducing unemployment rate or favorable balance of payments.

Unfortunately, Pakistan has not shown any significant development in the fields of education, health, security, public institutions, power generation and transport (See table 1.3).

Table 0.3: Ranking of Pakistan in Asian countries

| | Transport | Electricity & telephony | ICT | Education | Health | Security | Public institutions |
|---|---|---|---|---|---|---|---|
| Malaysia | 14 | 48 | 57 | 91 | 52 | 48 | 32 |
| China | 29 | 69 | 74 | 93 | 71 | 68 | 46 |
| India | 35 | 116 | 117 | 109 | 109 | 89 | 72 |
| Sri Lanka | 52 | 79 | 100 | 89 | 61 | 59 | 49 |
| Pakistan s | 80 | 126 | 111 | 126 | 111 | 137 | 111 |
| Philippine | 104 | 101 | 93 | 83 | 97 | 117 | 112 |
| Benin | 115 | 118 | 120 | 123 | 120 | 95 | 91 |
| Bangladesh | 117 | 137 | 132 | 118 | 107 | 103 | 112 |

Source: Schwab (2015).

The mineral sector can contribute in developing and attainment of the national objectives through a defined roadmap (Buck and Elver, 1970).This defined roadmap requires an understanding of the country's social, political, economic and geographic situation, which is vital for the mineral policy formulation (Mtegha, 2005).

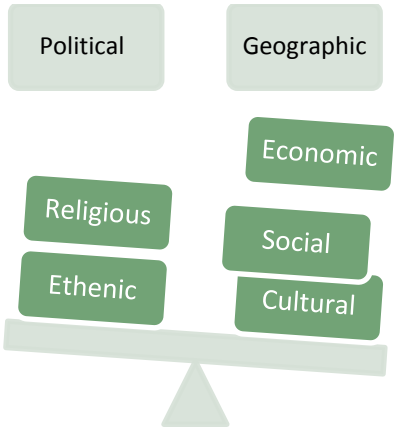
Unfortunately, before the formulation of NMP-1 and NMP-2 in Pakistan, a geo-political scan was not done and the element of stakeholder engagement was neglected, resulting in the failure of the implementation of the National Mineral Resource Policy in Pakistan. This has made the country to experience an uphill battle in steering an NMP that will address all its socio-economic challenges.

Buck and Elver (1970) stated that policy is not static, in other words, "it should evolve to reflect domestic and international circumstances as they relate to national objectives*"* (Mtegha, 2005)**.** The national policy is to evolve from time to time and it is a continuous process. Stakeholders play a vital role in balanced socio-economic system and serve as the backbone for the process of policy-making. They must be incorporated ranging from local communities, indigenous people to the government and investors, for a better understanding of key issues and their solutions. An important issue during the process is the time of incorporating the stakeholders.

This may be a time-consuming process because of repeated consultations, reviews, corrective measures, adjustments and implementation. The process has to be very quick and all the participants have to be responsive, quick and follow the deadlines for a better formulation and implementation. According to Mtegha (2005) "there is a degree of consultation fatigue and overload on the part of stakeholders". There is a threshold at which each stakeholder feels dejected and alienated. As a retaliatory

tactic, they do not come back to form part of the process e.g. local communities. However, if they realize that they can gain some benefits, they become active again. Such cases happen in remote areas of local communities, where literacy rates are quite low.

As Pakistan is a diverse country, every policy should address her political, religious, ethnic, socio-economic and cultural dynamics. A balanced mineral policy should be an amalgamation of above-mentioned ingredients (see Figure 1.7).




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Figure 0.7: Schematic role of stake holders in a balanced National Mineral Policy.

## 1.5 Structure of report

Chapter One: Background, literature review and aims of the research

This chapter gives an insight into the introduction and background of the research. It also reveals the past research on the topic and describes the overall scenario of mineral policy-making in Pakistan since 1947.

Chapter Two: History of mining in Pakistan

Chapter two gives an overview of the country and history of mining activities in Pakistan. It includes geography of the country, geology and climate, which play vital roles in the mining operations. This chapter describes the dynamics of culture, religion, and demography of the country as well. These dynamics help in understanding the stakeholder identification and their roles within these boundaries. Strengths, Weaknesses, Opportunities and Threats (SWOT) will give an overview of the local scan for mining operations in this chapter.

Chapter Three: Stakeholders along mining value chain

This chapter seeks to identify the critical stakeholders necessary for the mineral policy development process as well as analyse their interactions. This chapter gives an insight of the parameters in which stakeholders interact and affect the policy-making process.

Chapter Four: Outcome of Stakeholders Absence in Policy-making

This chapter depicts the impact of stakeholders in the formulation of policy-making. It further evaluates the impacts of non-consultation of stakeholders in NMP-1 and NMP-2 in Pakistan.

Chapter Five: Tactical and Strategic interaction of choices and value loops

This part of the research will deal with the tactical and strategic interaction between stakeholders. Comparison of choices and their respective consequences will be made for the mineral industry of Pakistan. Also, value loops with virtuous and vicious cycles will be made for the mineral industry of Pakistan.

Chapter Six Thar Coal - Case study for Policy-making

In this chapter, analysis of the policy for Thar coal project in Pakistan would be carried out as a case study. This case study would be analysed so as to evaluate the impacts and repercussions of stakeholder absence. The absence of stakeholder engagement in policy-making produces undesired results in the functioning of the policy. The future of economic development of Pakistan is linked with the Thar coal project, keeping in view the current power shortages and planning the country's potential for power-generation.

Chapter Seven: Conclusion and recommendations

Based on the conclusions and recommendations of previous chapters, a summary of conclusions will be stated in this chapter. If further research is required to be carried out on this topic, it will also be stated in this chapter.

## 1.6 Conclusion

In summary, this chapter covered the basic concept of value chain derived by Michael Porter in 1985. Important facets of the value chain and mapping of value chain concept into the generic mine value chain were discussed briefly. Analysis of Zachman management system for performance management and tools like scorecard analysis and leading and lagging indicators was done. With a country like Pakistan where mineral policy had been made without the consultation of stakeholders, it is pertinent to analyse the performance tools. These performance tools for a policy will justify the appropriateness of a policy and its effectiveness. When one cannot measure the performance of a policy, one would not be able to improve its effectiveness. Stakeholder identification and their roles are key for the formulation of an effective policy.

In this chapter, it was stated that policy of any sector should be able to address the key issues of that sector and policy formulation needs to be carried out by following a due process. Also, it was learnt from the chapter that stakeholders were not taken on board while formulating the mineral policy. Due to the same reason, the policy acted as reactive rather than proactive.

In the next chapter, the history of mining in Pakistan would be discussed. A careful analysis of culture, climate and demography as well as other major parts of the country's dynamics would be evaluated with SWOT analysis.

# CHAPTER TWO

## 2. History of mining in Pakistan

### 2.1 Introduction

Pakistan is rich in mineral endowments, which possess developmental potentials. The country is located at the intersection of South Asia, Central Asia, China and Middle East. Due to its geo-strategic location, the country has become a pivotal place for local and untapped regional trade. Pakistan is world's 6$^{th}$ most populous country with 182.5 million people as at 2012 (World Bank, 2014). The nation has an independence history of 67 years but the culture and existence of human kind can be traced back to tens of thousands of years (Szczepanski, 2014). Pakistan is blamed for extremist movements of Al Qaeda and Taliban, from the neighboring country of Afghanistan. However, Pakistan remains the first line state in the war against terrorism, joining hands with the North Atlantic Treaty Organization (NATO) forces. In 2011, UN human development statistics stated that poverty in the country was nearly 50% of the total population, and GDP of the country in 2012 was reported as US$ 494.8 billion (World Bank (2014); Acemoglu and Johnson (2005)).

The history of mining in Pakistan has been characterized by political strife, low foreign investment, unstable governance and unsuccessful implementation of mineral policy. These have resulted in slow economic growth of the country (Thomas, 2014). Pakistan's GDP is not based on minerals, however, significant amounts of mineral potential could be made use of in future. Pakistan's production of minerals is slow paced due to the presence of reserves in remote areas. The absence of sound infrastructure and mineral policy had made it difficult to develop the mineral sector. In 2010, Pakistan's unexplored oil reserves were estimated as being 3.5 billion barrels and gas reserves were estimated as being 1.76 trillion $m^3$ (Thomas, 2014). In 2010, Pakistan's mineral sector was to be improved by 32% as compared to 2009 but it could not achieve its target.

Pakistan is a diversified country in terms of culture, religion, socio-economic and demographical dynamics. The values and norms of one province is entirely different from another province. Without analyzing the dynamics of culture, religion, regional demography, any policy made cannot function properly. According to Cawood (2015), "it is necessary to first take stock of yourself and then formulate a policy, which corresponds to the dynamics and limitations identified".

In the next sections, Pakistan's demography, religious, cultural, climatic and socio-economic dynamics, which could potentially affect the mining operations in the country, will be discussed.

## 2.2 Pakistan - An Overview

### 2.2.1 Brief History of Pakistan - A glimpse

Today's Pakistan is the creation of a modern era. About 5000 years ago, Indus valley civilization created cities like Harappa and Moenjo Daro, which are part of Pakistan now. People started living in the Indus valley with Aryans who came from the north after the second millennium B.C. They formed epic tales on which Hinduism is based on now. From 486-550 B.C, E. Darius - The Great, conquered the lower parts of Pakistan but was later defeated by Alexander - The Great in 334 B.C, which then established the Greek Empire. After the death of Alexander-The great, his governors changed the empire into Satrapies[2] (Szczepanski, 2014). Chander Gupt Mauriya, one of Alexander's Satrap came to Pakistan and did not return. Muslims came into the subcontinent in 712 A.D under Ghaznavid Dynasty and ruled the Indo-Pak subcontinent till 1857. In 1857, the British defeated the Muslims in the subcontinent and ruled till 1947. Pakistan got independence from British rule on the 14th of August, 1947. After the independence, Pakistan had a presidential form of government in which the governor-general was the head of state. In the past 67 years, the country has had mixed forms of governments. Presently, Pakistan is being ruled under "parliamentary democracy" form of government in which the prime minister has autonomous powers. The President is the head of state while the prime minister is the head of government. The Prime Minister is elected by the National Assembly with two-third majority. The President is elected by members of National Assembly after the election of the Prime Minister. The President wields very limited powers and acts as a ceremonial figure in the political system of the country while the Prime Minister wields much more powers. In 2007, after 6 decades, the first elected government completed its tenure for the first time in the history of Pakistan.

Pakistan has faced political instability since its inception. The country was made to split into two places namely East Pakistan and West Pakistan. Also, the relations of Pakistan with India have remained strained since inception and three wars have been fought between these countries. As a result of the third war on the 16th of December,

[2] A government or jurisdiction of satrap, a principality

1971, due to political turmoil and instable law and order situation, East Pakistan was made a separate country called Bangladesh.

Pakistan has been influenced by Greek, Persian and Muslim culture, due to the roots of ruling empires in Pakistan.

### 2.2.2 Geography of Pakistan

Pakistan is located in South Asia on 30° latitude and 70° longitude with her coastal line along the Arabian Sea in the South. Pakistan shares her border with India, China, Afghanistan, Iran, and Tajikistan (See Figure 2.1).

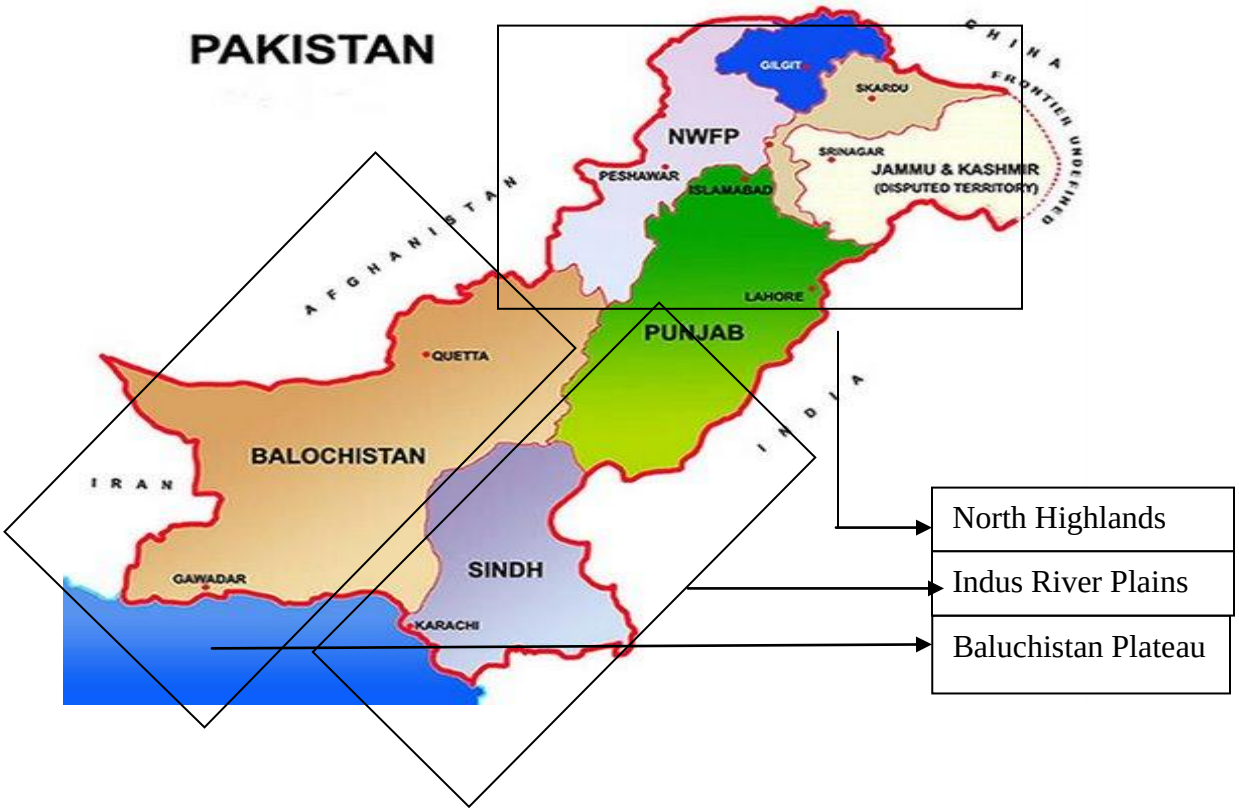



Figure 2.1: Map of Pakistan. Source: Google Maps (2015).

Pakistan is divided into three main regions.

a. North highlands
b. Indus river plains
c. Baluchistan plateau

The North highlands consist of Himalaya range, Hindukush range and Karakoram Range with heights varying from 1000 meters to 8000 meters. The world's 2nd highest mountain - K-2 (at a height of 8611meters) and the ninth highest mountain peak -Nanga Parbat (at a height of 8126meters) are located in this region. The Indus river plains consist of alluvial plains of Punjab and Sind astride River Indus. These planes were the recipients of the Indus valley civilization. Baluchistan plateau lies in the West of Indus Valley plains and Thar Desert in the East of Indus valley plains. Most of the agriculture is done in the Indus plains due to the presence of the Indus river and monsoon catchment area (University of Texas, 2014).

### 2.2.3 Climate of Pakistan

Apart from the coastal region, most of the country is characterized by extreme weather conditions. The country is divided into climatic regions keeping in view the average rainfall. Pakistan has monsoon season with excessive rainfalls (which is more than 1700mm) in the humid regions. In the Sub-humid regions, the average rainfall is between 500 and 1000mm annually and the maximum temperature varies from 25°C - 45°C in summer. The Semi-Arid, Arid and Hyper-Arid regions receive comparatively less rain that varies from 150 to 500mm annually (Pakistan Meteorological Department, 2014 ). The major agriculture bases are the Humid and Sub-Humid regions of Pakistan. The average temperature in summer varies from 25°C - 48°C and the maximum temperature recorded is 55°C in Jacobabad. In the Northlands, peaks are covered with snow almost throughout the year and temperatures vary from 2°C - 20°C in summer and usually remain below freezing point in winter (see Figure 2.2) (Szczepanski, 2014).

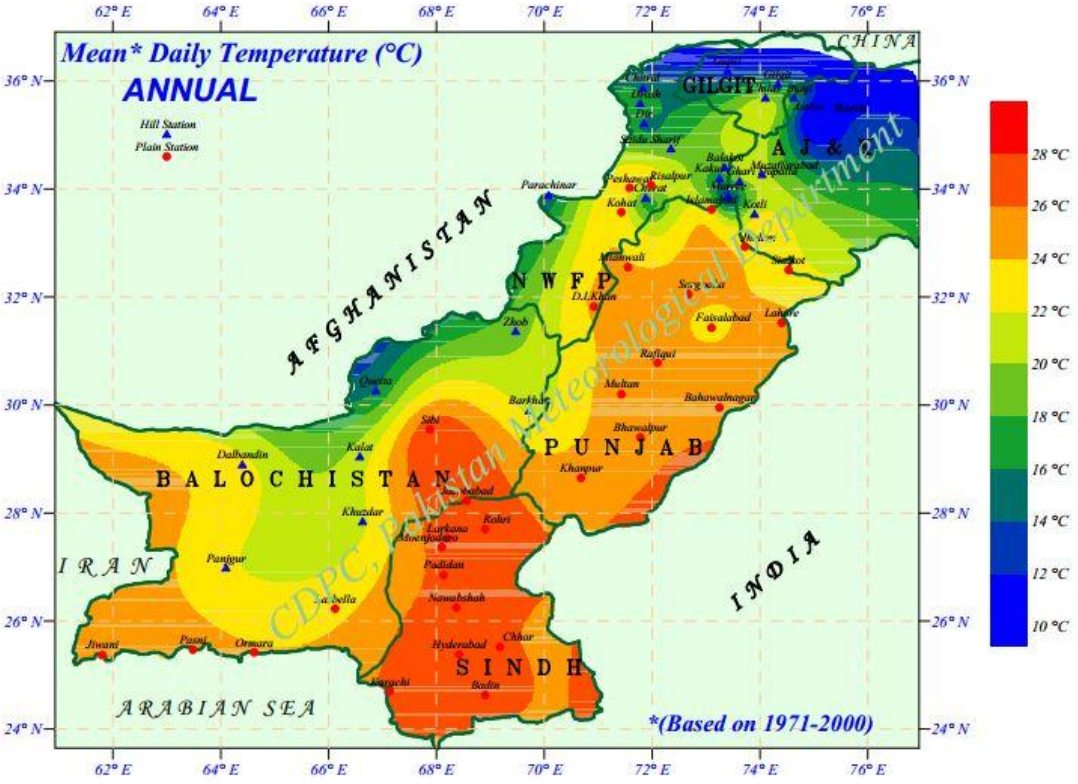



Figure 2.2: Temperature range of Pakistan. Source: Pakistan Meteorological Department (2014 ).

## 2.3 The Cultural dynamics of Pakistan

Pakistan came into being on the ideology based on religion. Islam is practiced thoroughly in all sects and regions. Pakistan has four provinces and every province has its own culture and artifacts[3]. People normally enjoy close interpersonal relationships and feel comfortable to discuss their work, culture, history and from where they belong (Center for Intercultural Learning, 2014).

Pakistan is a male dominated society, however, women are given due recognition within the boundaries set by religion and culture. Generally, the culture can be termed as reserved and conservative where opposite sex does not mingle in parties and interact freely in public places. Religion is a strong facet of the country and speaking against the religion is taken as a serious offence. Religion gives powers to women to interact with the society and work as well. There is no discrimination between men and women in work environment and in education in urban areas.

[3] Artifact is defined as the manmade object typically one for cultural or historical interest.

Pakistani society is based on class system and respect is given to people who are financially, politically and economically sound. Land owners are more respectful and preferred over businessmen or intellectuals who can be a part of policy-making.

Pakistan is divided into five major ethnic groups. The Punjabis are in the majority and settled in plains of Punjab. Sindhis are settled in Sind province in the South, Baluchis reside in the province of Baluchistan and the Pashtoons live in the North-Western province called Khyber Pakhtun Khuwah (KPK). The Last group is the Muhajirs (immigrants), who are settled all over the country but mainly in Karachi and Hyderabad. They came mostly from India at the time of independence (Center for Intercultural Learning, 2014). The official language of Pakistan is English and the national language is Urdu. Pakistan is culturally diversified and every province has its strong socio-economic value system which they follow.

### 2.4 Religious Dynamics

Some 96% of the population of Pakistan is Muslim (Muslim Statistics, 2014). There are two major sects in this religious circle. The Sunnis are 85% - 90% of total Muslim population and the Shiaites are 10% - 15% of the Muslim population. Pakistan's religious population is scattered throughout the four provinces (Index Mundi, 2014). One- third of the population of Pakistan is between the ages of 18 - 29 and 60% of them believe in the Islamic system of law (Shah, 2014).

Pakistan also has a mix of liberals (in major urban cities) and practicing of other strong religion. The Islamic clergy has the major influence on the national policy as well as the people of country. Apart from the formal education system, religious schools called Madrassas, are run by the religious scholars in the country. These Madrassas are present in rural areas in abundance as comparable to urban areas. People follow the rituals and religious festivals every year. In the month of Ramadan, every Muslim is morally and religiously bound to keep fast (Muslim ritual in which you are not supposed to eat and drink from sunrise to sunset). There are national holidays on religious days like Eids, shab e Qadr, shab e mairaj and Muharram.

## 2.5 The mining industry of Pakistan

It has been observed overtime that countries that have benefitted from mineral exploitation and sustainability in mineral beneficiation are better off than those countries who are suffering from Dutch Disease. Mineral sector development from

its significant mineral endowments being found as having the world's second largest salt mines, fifth largest gold and copper reserves, the world's second largest coal mine in Thar district of Sind Province. Mineral sector development is expected to be achieved through joint venture programs, which is an important facet of global mining industry now days. The aim of economic development can only be achieved through competitiveness and attracting foreign direct investment (FDI). At present, there is no legal or financial document which can act as a guide for foreign investors in Pakistan (Sohail, 2013). Formulation of such a guide is an uphill task for acquiring the consensus within the governance structure of Pakistan. Many countries of the world had made investor guidelines to align the investors with national development goals of the country and with their investment plans. From the investor's point of view, it is a tradeoff between the national development goals and investor's plan. It can only be beneficial if such document exists and is implemented.

Furthermore, in terms of mineral endowments, Pakistan has been found to possess between 436 and 618 billion barrels of crude oil and 31.3 TCF of gas reserve and recoverable reserves of 29.671 TCF (see Table 1.1). Pakistan was self sufficient in natural gas and oil till 1980, when political instability and declining business growth started having negative impacts on mining and petroleum sectors. The production of natural gas, coal, copper, phosphate and chromite were all adversely affected as well (see Table 2.1) (Government of Pakistan, 2015).

Table 2.1: Minerals and extractions in Pakistan.

| Minerals | Unit of Quantity | 2010 - 11 | 2011 - 12 | 2012 - 13 | % Change |
|---|---|---|---|---|---|
| Coal | M.T | 3,291,617 | 3,178,986 | 3,079,176 | -3.1 |
| Natural gas | MMCFT | 1,471,590 | 1,558,959 | 1,525,866 | -2.1 |
| Crude oil | JSB (000) | 24,041 | 24,573 | 28,462 | 15.8 |
| Chromite | M.T | 148,034 | 179,203 | 161,045 | -10.1 |
| Magnesite | M.T | 4,908 | 5,444 | 5,949 | 9.3 |
| Dolomite | M.T | 240,111 | 198,392 | 449,034 | 126.3 |
| Gypsum | M.T | 885,368 | 1,260,021 | 1,297,020 | 2.9 |
| Lime tone | M.T | 32,020,996 | 35,016,411 | 38,756,783 | 10.7 |
| Rock Salt | M.T | 1,953,711 | 2,135,760 | 2,104,986 | -1.4 |
| Sulphur | M.T | 27,645 | 25,560 | 18,162 | -28.9 |
| Barytes | M.T | 31,836 | 48,510 | 259,941 | 435.9 |
| Bauxite | M.T | 9,033 | 30,223 | 48,958 | 62.0 |
| Calcite | M.T | 607 | 170 | 370 | 117.7 |
| Soap Stone | M.T | 47,561 | 55,515 | 90,817 | 63.6 |

| | | | | | |
|---|---|---|---|---|---|
| Marble | M.T | 1,132,900 | 1,750,578 | 3,219,834 | 83.9 |
| Copper | M.T | 15,672 | 17,931 | 15,758 | -12.1 |
| Phosphate | M.T | 30,950 | 69,400 | 58,204 | -16.1 |

Source: Khan (2003).

Figure 2.3 shows the distribution of natural endowments across Pakistan. In the same figure, it can be seen that out of 52 minerals which are extracted, 20 are mined from Baluchistan (see Figure 2.3). Rikodik deposit in Baluchistan holds 1.656 billion tons of gold and 6 billion tons of copper with average grade of 0.41% copper and 0.22 grams per ton (g/t). Khyber Pakhtun Khuwah has gemstones apart from oil, gas and energy materials, which are under Federal control. Coal deposits are found in Thar, Quetta, Chamalang and in southern Punjab. (Sohail, 2013). The Khewra salt mines are over 110 square kilometers with average production of 325,000 tons per anum. Significant amounts of mineral reserves are also located in the Federally Administrated Tribal Areas (FATA), which is a semi- autonomous area that lies with the borders of Afghanistan.

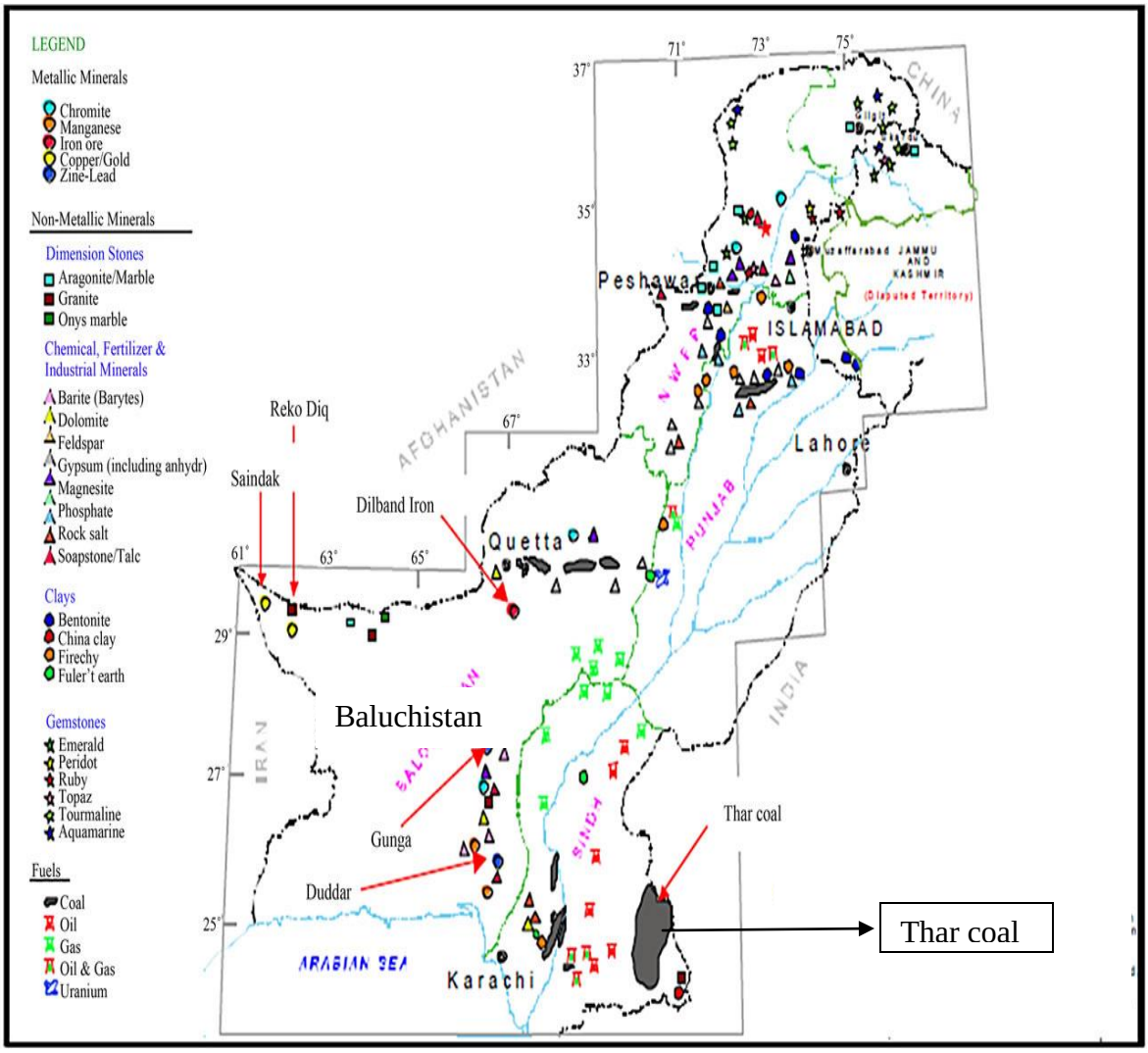


Figure 2.3: Mineral map of Pakistan. Source: GSP (2012).

Despite the above-mentioned mineral potential of Pakistan, the mineral sector contributes less than 1% to GDP annually in Pakistan (Sohail, 2013). However, GDP was expected to increase with the commencement of the Reco Dik Gold and Copper projects, Thar coal and Duddar zinc lead deposit but unfortunately, the Government of Sindh (GoS) had to lower its targets of GDP due to torrential rains and inclement weather in 2010 to cover the shortfall. (PBS, 2010). In 2011 - 12, mining sector showed a positive growth of 4.4 % as comparable to the negative growth of -1.3% in 2009-2010 (GoP, 2015). The data for mining and quarrying was combined with manufacturing sector. These figures included the large manufacturing companies, who posted 1.05% growth singularly as a sector. This double accounting system

refrains the industry to look into the depth of shortcomings of the industry and take corrective measures.

### 2.5.1 National Mineral Policy Environment - A critical review

With the constitutional backing of the Supreme Court of Pakistan (SCP) coupled with provincial and federal government efforts, the first Mineral policy was formulated in 1995 (NMP-1). This mineral policy was to be implemented by the provincial governments, which also provided the guidelines for the regulatory and legislative framework. The Federal government assumed the role of supervisor in the implementation process. NMP-1 should have addressed the core issues highlighted in the policy, but unfortunately it could not achieve its goals. NMP-2 was formulated following the same process in 2012, with almost the same institutional and management structures as NMP-1. Instead of strengthening the aims and objectives of NMP-1, the NMP-2 shifted its focus to broader goals than NMP-1. The main focus of the NMP-2 was to increase the contribution of the mineral sector in the economic development of Pakistan. A comparative analysis of both mineral policies in Table 2.2 highlights the fact that a strategic thought process was lacking in the planning parameters of policy formulation (Sohail, 2013).

Table 2.2: Comparison of the focus areas of the National Mineral Policies.

| **NMP-1** | **NMP-2** |
|---|---|
| Increased employment opportunities with skill enhancement | Economic development of country |
| Sustained development of mineral based area | R&D enhancement, HRD and mineral marketing |
| Broader business opportunities for local industries | Competitiveness and investment opportunities |
| Increased revenue flow to provincial and federal governments | Effective Governance and management |
| Technology transfer | Environmental sustainability |

| | |
|---|---|
| Local infrastructure development and improved database of Pakistan mineral resource | Encourage small scale mining and local private participation |

Source: Sohail (2013).

The present mineral policy is better to be referred to as a guideline for the development of a comprehensive policy document and implementation plan. The reason why it cannot be taken as a comprehensive policy document is because all six dimensions of the policy were visualized without the realization of stakeholders along the mining value chain as well as their interaction, roles and impact. The policy was also made in isolation without analyzing the impact of one industry on another. There is an impact of every industry on another either directly or indirectly (Leeuw, 2013). Moreover, there is a linkage between every upstream and downstream industry as well (Leeuw, 2015) (see Figure 2.4). NMP-2 did not define the inter-linkages between mineral sectors and the other sectors of the country, as well as their impact on mining. In the current mineral policy, these upstream and downstream industries (primary and secondary stakeholders) were not consulted during the formulation of policy.

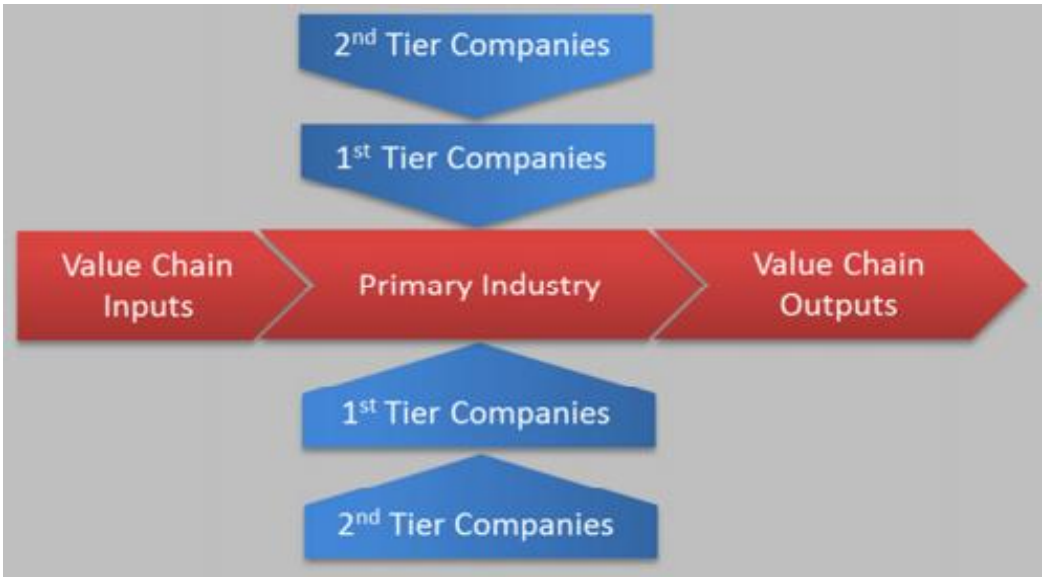



Figure 2.4: Inter-linkage of industries. Source: Leeuw (2013).

NMP-2 also has no guide for joint venture programs, which can set the directions for international investors. There are other issues that need to be addressed like:

- Confidence-building for international companies;
- Unforeseen hazards for mineral sector such as earthquakes and rains;
- Developing measurable atmosphere with defined deliverables for a mineral policy;
- Engaging local communities in mining process;
- Addressing political and civil unstable and volatile atmosphere;
- Addressing indigenous groups and cultures; and
- Formulating the guidelines in provincial and federal governments for smooth functioning of mineral processing.

These are some other vital areas, which the current mineral policy has failed to address. The aim of the current government to align the industry with international standards is not reflected in current mineral policy. Furthermore, the policy stipulates no tools for increasing the GDP through mineral sector. There should be some quantitative tools defined which can act as the milestones for achievement of the policy.

Due to the formulation of NMP-1 and 2 without stakeholders' consultation, the procedural delays, interprovincial conflicts, legislation issues and implementation hurdles are the hallmarks of the current mineral industry. The result of the gaps in the formulation of National Mineral Policy-2 is reflected by the failure to address the 6 core areas highlighted in NMP-2. Developing the mineral policy without realizing stakeholders along mining value chain would not be effective.

### 2.5.2 Challenges for mining sector in Pakistan

Mining operations have generally long-lead times (approximately 10-23 years, depending on type of commodity) to develop and go into production phase (Solomon, 2014). Also, the mining industry is characterized as being highly risky, capital-intensive and cyclical in nature. On the other hand, investor's top priority is political stability, transparency, equitability, efficiency, predictability and a supportive mineral policy (Desai, 2014). Political instability which include coup d'état, regional conflicts, military rule and terrorism, are noteworthy issues affecting mineral investments in the country. Pakistan is listed second among the extremely risky countries for terrorism in the world (Maplecroft, 2014)[4]. Also, Pakistan is listed as 127$^{th}$ in terms of corruption ((2013) (Transparency International, 2014)) and 5$^{th}$ in

[4] Author has done research on challenges for mining industry which was submitted to the Mining School on 7th October, 2014.

terms of foreigners' kidnapping and ransom payments in 2011 (Red, 2012). Among the challenges, political instability remains at the top.

The accountability atmosphere in the country is weak because corruption is at a rise. Due to the absence of deliverables in the Thar coal underground gasification project, it was put on hold by the Federal government and the government stopped further release of funds (Daheem, 2014). The political structure is weak with demands for kickbacks and cuts in international deals. Sind Engro coal mining company set up a 100MW coal-fired plant in 2011, with open pit mining. The Provincial government stopped the supply of coal to the plant on tax and royalty issues. The Underground coal gasification project has also been held in abeyance due to internal conflicts in the Planning Commission (Daheem, 2014) .

The weak taxation system in Pakistan is another hurdle. Tax on income constitutes 97% of direct tax collection. The present regime targeted an 11% ratio of tax to GDP by rigid tax collection system and increasing the tax base in the fiscal year 2013-2014 (Aftab, 2014).

Pakistan's Provincial and National Mineral Policies were formulated without the stakeholder consultation. It was neither given to stakeholders for discussion and improvements, nor was it made public for comments. The results were lengthy, time-consuming and complex procedures for foreign investors with the involvement of different level of organizations. For example, a feasible proposal has to undergo provincial and federal institutes for a smooth and successful outcome. If there are some disputes between both parties, investors suffer as in case of Sind Engro coal mining company. The other challenges of mining industry are discussed hereinafter.

#### 2.5.2.1 Management and effective governance

The World Bank and Government of Pakistan had started extensive reform programs to resolve the conflicts in different sectors. The programs aimed at better allocation of resources, increase of the public investment, reduction of debt, improvement of governance, management, and increase of the government revenues by softening the taxation regime. These reforms were also to be implemented at all sectoral levels. Within the mineral sector, these reforms aimed at allowing for a smooth legislative process for effective policy- making. Unfortunately, the legislative process could not start as it was aimed. Furthermore, these reforms were targeted at inter-provincial coordination and federal supervisory role. Interestingly, the regulatory and legislative

regime was ignored in NMP-2. Also, the portfolio responsibilities of provincial and federal government were not clearly demarcated by NMP-2, which resulted in Reco Dik debacle. It is customary that the federal government deals with international players at country level, even when mineral resources and reserves are owned by the provincial governments. At international level, companies prefer to negotiate and dialogue with federal agencies so as to reduce the communication gap. These constitutional and legislative conflicts need to be addressed for better governance and management of the mineral resources.

#### 2.5.2.2 Environmental sustainability

Pakistan had adopted the "National Conservation Strategy" as the official document in sustainable environmental regime in 1992 (Awan, 2013). Pakistan is also a member of 15 multilateral environmental agreements and protocols and ratified all these agreements. It is the responsibility of the government to ensure the implementation of these agreements. The international conventions and protocols are divided into 5 categories. They are:

a. Conventions for Biodiversity ;

b. Climate change and atmosphere ;

c. Land convention or environmental conventions ;

d. Chemical waste and hazardous material conventions ; and

e. Sea conventions and agreements

These conventions and agreements should form part of the legislation and joint venture program guide. In NMP-2, this aspect of legislation is neglected. Due to the absence of environmental legislation, international companies are reluctant to invest in Pakistan because of the global pressure.

#### 2.5.2.3 Local involvement and community development

In NMP-2, the clause of local community involvement and development is ignored to an extent that there is no definition of local community, indigenous people and stakeholders (GoP, 2012). Due to non inclusion of specific terms, Riko Dik Project suffered legal hurdles in operations. Communities must be protected from the adverse

affects of resource dependency and resource curse (Scheffer, 2013). Many of the minerals are found in the tribal areas and in Baluchistan. Special deliberation is required to protect the rights and delicacies of these areas. Emphasis must be laid down on the pre-mining and post-mining activities in these areas for smooth mining activities to commence.

#### 2.5.2.4 R & D and Human Resource Development

Pakistan is still in the phase of developing her mineral sector. At present, there is no dedicated mining school in the country, which undertakes the responsibility of producing mining engineers. Individual subjects are being taught in different universities but dedicated mining engineering degree program is not done in any university. For the mineral resources of Pakistan, it is the need of the hour to address the reserves individually and should not be addressed with petroleum policy. In the light of NMP-2, there were no measures taken for Department of Education to build the capacity for research and development up till now. With the current exploration of iron ore in Chiniot, there is a critical need to employ specialists of mineral processing, mineral exploration, mineral resource management and mineral marketing (Pakistan Defence, 2015).

## 2.6 SWOT analysis of Pakistan

SWOT analysis is the framework for analysing the internal factors (strength and weaknesses) and external factors (opportunities and threats), which can affect the viability of a project, venture or business (Rouse, 2013). The framework is attributed to Albert Humphrey who analysed the Fortune 500[5] companies in 1960 - 70. Strengths and weaknesses are the internal factors, which can be corrected locally within organizations. Opportunities and threats are the external factors, which an organization cannot correct on its own but take corrective measures to refrain from the trap of uncontrolled factors. When the SWOT analysis is done and SWOT factors are identified, the organization, business or project is in a better position to frame up its strategy for the future.

[5] Fortune 500 is US based magazines in which world's top 500 companies success stories are published.

### 2.6.1 Strengths of Pakistan

Pakistan is located at a vital geo-strategic point in South Asia and it has a large market size due to its population and sufficient presence of infrastructure for smooth export operations to Central Asia, Far East Asia, Middle East and Europe (Husain, 2013). Demographically, Pakistan has a large share of middle class citizens with increasing demand for consumer goods, automobiles and consumer durables. Pakistan has flight links with almost the whole world and the presence of rail infrastructure within the country makes it viable for the business environment. The Human Development Index is the average of basic human development achievement of a country. Pakistan is ranked 146 out of 187 in the HDI index (UNDP, 2013). A vast majority of English- speaking and trainable workforce is available in the country with fairly good gross national income. Pakistan is ranked equivalent to Bangladesh and comparable to India. The gross national income of Pakistan is comparable with India which has emerged as regional economic power (see Table 2.3).

Table 2.3: Comparison of Pakistan's HDI with neighboring South Asian countries.

| | **HDI Value** | **HDI Rank** | **Life expectancy at birth** | **Expected schooling years** | **Mean schooling years** | **GNI ( PPP US $)** |
|---|---|---|---|---|---|---|
| **Pakistan** | 0.515 | 146 | 65.7 | 7.3 | 4.9 | 2,566 |
| **India** | 0.554 | 136 | 65.8 | 10.7 | 4.4 | 3,285 |
| **Bangladesh** | 0.515 | 146 | 69.2 | 8.1 | 4.8 | 1,785 |
| **South Asia** | 0.558 | - | 66.2 | 10.2 | 4.7 | 3,343 |
| **Low HDI** | 0.466 | - | 59.1 | 8.5 | 4.2 | 1,633 |

Source: UNDP (2013).

Pakistan's main natural resources are arable land, natural gas, water and minerals. 28% of its land is under cultivation using the world's largest irrigation system (Mehtabdin, 2013). Pakistan can play an important link and business corridor between China, India, Middle East, Afghanistan and Iran. The geo-strategic location of Pakistan makes it important for the region. The media is an additional strength for the country. Presently, there are 40 channels which are broadcasting a vast variety of programmes. The Media has freedom of expression, however, government gives

directions on national issues. Pakistan possessing a fibre optic infrastructure throughout the country makes the business environment more fluid.

Pakistan also has a sound banking system. It has a liberal and supportive foreign exchange regime which allows clear, open and unlimited repatriation of profits (Mehtabdin, 2013). Tariffs on imports have been brought down to 10%, which has attracted more foreign investors (World Trade Organization, 2015).

### 2.6.2 Weaknesses of Pakistan

Pakistan was freed from British rule in 1947. Since her 67 years of freedom, Pakistan's democratic process has been disturbed by military rule thrice. The Constitution was suspended during these military rules (Mehtabdin, 2013). In 1998, freezing of international and foreign currency accounts shattered the confidence of investors in the country. In Pakistan, the key financial institutions are in financial disruption, which puts extra encumbrance on public finance and the banking sector. Corruption in higher governmental institutions puts extra burden on financial institutions that are already under political pressure. This has resulted in increased deficit financing making Pakistan to be ranked 126th out of 179 countries in the Corruption Perception Index (Ugaz, 2014). High corruption ranking is a sign of widespread bribery, lack of implementation of law for anti-corruption and no responsiveness of public institutions. Policy matters revolve around personalities and are weaker, opaque, lengthy and vague in nature. Procedural delays have caused many projects in Pakistan to shut down before maturity.

Pakistan's literacy rate is another hurdle in high-tech business environments. Pakistan's literacy rate is 46% and most of the educated population is accumulated in Punjab which is the central part of the country (see Figure 2.5) (UNICEF, 2014). From educated population, only 26% of females are literate, which has created a barrier on female workforce (Latif, 2013).

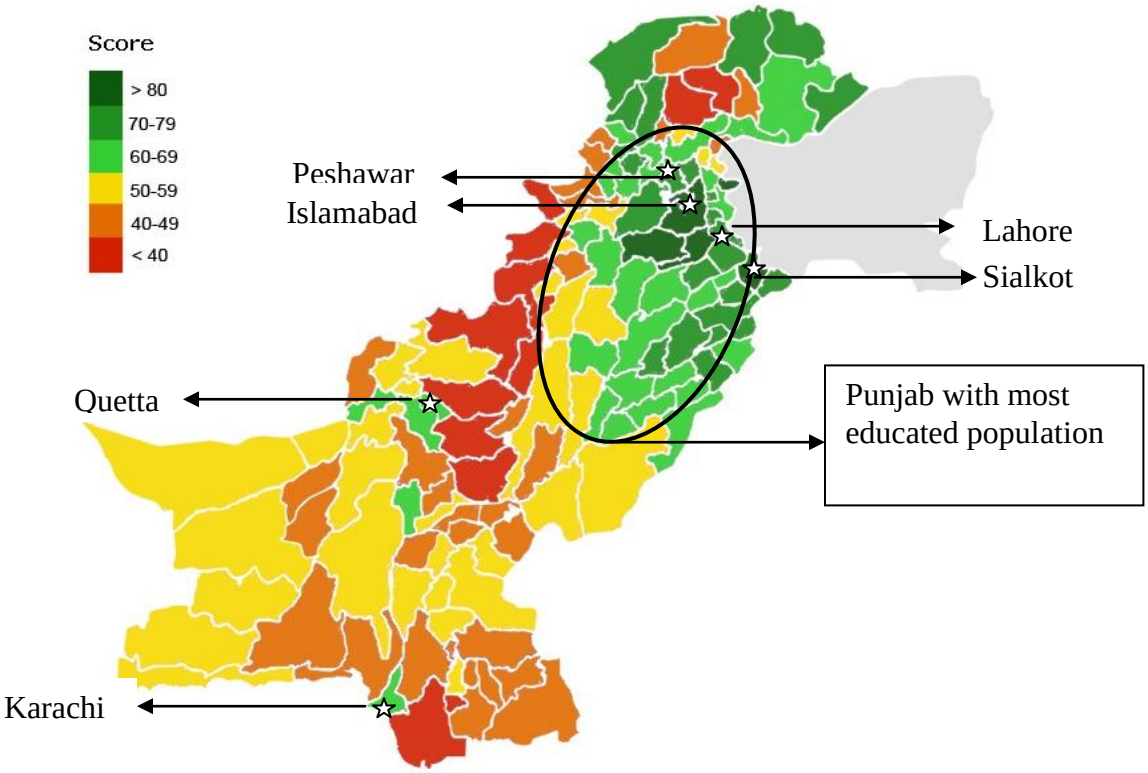



Figure 2.5: Educational population density in Pakistan. Source: UNICEF (2014).

Electricity shortage is another hurdle in the development of Pakistan, which wipes off 2% of annual GDP (Kazmi, 2013). Pakistan has not invested in the power infrastructure, keeping in view the future demand.

Unfortunately, Pakistan's transportation infrastructure has not shown any significant improvement. The present government has not developed additional road and railway infrastructure. Baluchistan and Sind are already connected to the main supply route of the country. Pakistan is ranked 80th in global infrastructure ranking which needs to be improved (Global Competitiveness Report, 2014) (See Table 3.4). Transportation stakeholders like National Highway Authority, Pakistan Railways, National Road Transport Corporation, Pakistan International Airlines, Metro Railway and local transportation vendors, should be involved as stakeholders in policy formulation. They should be given some incentive for transportation of the minerals. Pakistan Railways, who is national flag carrier, has the access to vital mineral areas like Baluchistan and Sind. Unfortunately, it is operating on 1st generation diesel

locomotives and broad gauge. Due to huge operating and maintenance costs, Pakistan railway has not shown any development in the transportation sector.
Pakistan is struggling to overcome the infrastructure issues faced by the country. Since 1996, the road infrastructure has improved by only 13% to cover 259,618 kilometers, out of which 179,290 kilometers is of high grade. The national highways and motorways in Pakistan constitute 4.2% of total network and handles 85% of traffic. National Highway Authority has recently increased its toll to 36% for increased maintenance. Thirty new projects with an increase of 1000 kilometers of road network are expected to be added (Ahmad, 2013). After the Antofagasta Barrack Gold debacle, Pakistan is now serious about carrying out beneficiation within the country. Infrastructural improvement will significantly enhance the dependency of mineral-based beneficiation on reliable and swift transportation system.

### 2.6.3 Opportunities for investment in Pakistan

Due to the presence of the sound banking infrastructure as well as foreign exchange liberalization and banking procedures, the World Bank has declared Pakistan as a country with "ease of business environment" (World Bank, 2014). Pakistan's tax regime and laws governing imports and exports are supportive for investment in capital-intensive projects.

Halaal food market is another segment where Pakistan can make a difference. Halaal means permissible and eatable for Muslims. The Halaal food market comprised of US$ 635 billion and shared 16% of world food industry in 2012 (Mehtabdin, 2013). Halaal food demand is growing in Australia, USA, Canada and other European countries. By 2018, the Halaal food industry will reach US$ 1.8 trillion (Halaal Food Statistics, 2014).

Pakistan has untapped mineral deposits (See Table 1.1), which can play pivotal roles in the country's development. Pakistan has approximately US$ 500 billion untapped mineral resources (Ministry of Defence, 2013). Pakistan and Afghanistan have more than US$ 1 trillion worth of mineral resources in the Tethian belt. From independence till 1970, Pakistan's economy was based on agriculture. In 2011, the services sector accounted for 53% of GDP. Industrial and agricultural sectors' contributions were 26% and 21% respectively (United States Geological Survey, 2012). Industrial output in the national economy improved by 3% and a major portion of this increase was attributed to construction materials. The mineral industry accounted for 2.5% of GDP in 2011, which had a direct impact of 2.4% on growth rate in 2012 (Kuo, 2012). In 2012, cement and jewelry were the main exports. Pakistan's mineral sector including

coal, oil, gas, copper and gold is still to be exploited. The cotton sector has been damaged due to the power shortage but can be revived.

There is prevalence of 'cut-throat' competition in today's mining world. Mining companies are rolling back their operations from where profit margins are squeezed. Fortunately, the geo-strategic location of Pakistan can facilitate the mineral industry. By keeping strong trade relations with some of the BRICS countries - China, India and Russia, Pakistan can benefit its local mineral industry, as these are close neighbors of Pakistan. The aim of the mineral policy is to attract FDI through competitiveness of the industry through an enabling and stable business environment. This stable and enabling environment is still an uphill task for the government. Political and social stability is the foundation stone in the investment cycle.

### 2.6.4 Threats against Pakistan's business environment

Pakistan had been playing the role of ally in the war on terrorism with the international community. Pakistan had tried to settle the disputes between miscreants and the government of Afghanistan with peace talks but it was in vain when terrorists attacked school children on the 16th of December, 2014. Terrorist attacks in Pakistan remain a vital issue for foreign investment. Pakistan is currently ranked 2$^{nd}$ after Somalia, in terrorism among other countries (Tribune, 2010).

The stable law and order situation in Pakistan has declined down since 1990. Politically targeted killings, abduction of foreign engineers and workforce, terrorist attacks have questioned the viability of projects in Pakistan. Kidnapping of foreign persons is another issue, which has put Pakistan as 5$^{th}$ ranked nation in terms of foreigners' abduction (Red, 2012).

The long-standing dispute between India and Pakistan with the ongoing blame-game of cross-border terrorism has further created uncertainty for Pakistan. The disruption made by the violent actions of both countries, has hampered the development process. Pakistan's armed forces are one of the main stakeholders in national security due to the geo-strategic location of Pakistan. Territorial disputes of Kashmir, Jammu, Junagadh and East Pakistan (now Bangladesh) have forced the governments to accept the influence of the military. It was the need of that time to take the military as the frontline defense against terrorism due to well equipped terrorists. Due to the failure of governments on the issues of national security, the Armed Forces had to take the

security situation in hands to avoid further damage to the country. But as a tradeoff, Pakistan suffered on economic grounds in the form of losing GDP growth and spending more on defense and security issues. Inland security and terrorism are some of the biggest threats which the country is faced with at present.

With oil not being sufficient for domestic use, Pakistan imports oil mainly for power generation (State Bank of Pakistan, 2012). The country is under a continuous trade deficit due to the importing of energy minerals. Fuel and furnace oil accounted for 40% of imports, while machinery and equipment accounted for 18% in 2013 (Trading Economics, 2014). Pakistan's dependence on imported oil for power-generation is the main reason for trade deficits and decreased foreign direct investment (Kuo, 2012).

Tax to GDP ratio in Pakistan is lowest among developing countries. Pakistan is facing the issues of circular debt (slippages in bill payments, debt accumulation for independent power producer companies which results in decreased power generation), subsidies, increased urbanization and consumption coupled with cost inflation. The IMF had extended US$ 6.7 billion to clear the circular debt, tariff adjustment and for financial viability (IMF, 2013) which is otherwise an additional burden on the economy. Foreign debt from the IMF and other financial institutions has put Pakistan on a weaker footing. Due to heavy debt, IMF dictates to Pakistan on financial and taxation matters. Pakistan is bound to accept the terms and conditions for the tariff adjustments, which have further decreased the trust of foreign companies (Husain, 2013). The summary of SWOT analysis is shown in Table 2.4.

Table 2.4: Summary of SWOT analysis of Pakistan

| **Strengths** | **Weakness** |
|---|---|
| Geo strategic Location | Military influence |
| Large market size | Military influence |
| Infrastructure presence | Corruption |
| Natural resources | Skilled labour |
| Sound banking system | Power shortage |
| Ease of business environment | Transportation infrastructure |

| Opportunities | Threats |
|---|---|
| Mineral sector<br>Halaal food market | Terrorism<br>Law and order situation<br>Kidnapping of foreigners<br>Cross border terrorism with India<br>Kashmir dispute<br>Heavy debt (IMF) |

## 2.7 Conclusion

Chapter Two emphasized the fact that Pakistan is located at a geostrategic location and endowed with vast minerals. The chapter also showed that Pakistan has a rich history of civilization and culture which has made it more diverse in religion, ethnicity and socio-economic status. The chapter discussed the country's diverse climate and culture with respect to how they influence stakeholders' engagement in the mining sector. These have made the country's business environment complex and risky.

This is due to the fact that history of mining in Pakistan has been characterized by low investment, political strife, half-done legislation processes and incomplete implementation of national mineral policies. Pakistan's GDP is not based on minerals and the mineral sector has been neglected due to its low contribution to GDP (less than 1%).

A SWOT analysis was also carried out for Pakistan, which showed that the banking sector, media, skilled labour and presence of vast minerals are the strengths for Pakistan. Its significant populace presents a stable economic market. Its geo-strategic location and presence of coast line, the country can play an important role in the economic development of South Asia. On the other hand, corruption, procedural delays, weak policies and implementation are the weaknesses of Pakistan. Opportunities and threats were also discussed.

Unfortunately, government did not do the business environment scan (SWOT analysis) for the mineral sector previously. Due to its complex business environment, it was concluded that a sound, efficient and balanced mineral policy is required which can address the fundamental issues affecting its mineral sector. To this effect, a thought-process had to be initiated for the development of the balanced mineral policy. This thought process can only be successful sby identifying the stakeholders

and assessing their strategic role after post-SWOT analysis. In the next chapter, stakeholders along the mining the mining value chain of Pakistan would be identified and their strategic role would be assessed.

# CHAPTER THREE

## 3. Stakeholders along the Mining Value Chain

### 3.1 Introduction

Stakeholders are the people, businesses or organizations, which can affect or be affected by the achievements of a business or project (Financial Times, 2014). There are two types of stakeholders, Internal and external stakeholders. External stakeholders are those stakeholders who are not members of the business or organization but influence the business and can also be influenced e.g. financial institutions, suppliers and customers. Internal stakeholders are those stakeholders who are within the parameters of the company e.g. board members, managers, workers, families of workers and stockholders. CEOs are also considered as internal stakeholders because they own the stocks of the company (Investor World, 2014).

A participatory process is advocated worldwide in policy-making (Community Toolbox, 2014). It means the policy-making should involve as many people or organizations as possible, who are influenced by the project or policy. The involvement of all the stakeholders during any process of project, business, policy or initiative, will lead to better outcomes, supportive environment of community and create a buy-in for implementation (Community Toolbox, 2014). For a better participatory process for policy-making, it is necessary to indentify the stakeholders required at the specific levels of the process and their roles. It is important to note that, all stakeholders are not required at all the levels.

### 3.2 Types of stakeholders

Stakeholders are directly or indirectly affected by the processes of business, initiative or a project. There are also some people who have strong political, academic, philosophical and social reasons that are not directly linked to the process e.g. non-governmental organizations (NGO) who have social and economic concerns for a mining project in rural areas. Stakeholders may be classified as follows.

- Primary Stakeholders: Primary stakeholders influence the company positively or negatively directly and are influenced by the processes of the business indirectly (Gomez, 2014);

- Secondary stakeholders: Secondary stakeholders are those stakeholders who influence the process or are being influenced by the process indirectly, either positively or negatively; and
- Key stakeholders: These stakeholders belong to either of the two groups but have vital importance for the organization's efforts or attainment of its goals (Community Toolbox, 2014). For example, for lowering the unemployment rate in a country, the government is the primary stakeholder and educational institutions are key stakeholders.

### 3.3 Stakeholders analysis and identification

Stakeholder analysis is an important part of developing a stakeholder engagement plan for policy formulation. It helps to pave way for engagement of all the parties, who are involved in research and developing the policy. By identifying the stakeholders, it is easy to reach the aim and the goal of the policy by giving a specific direction (ODI, 2014).

For analysis of stakeholders, the impact analysis matrix is drawn (see Table 3.1). In impact analysis, all potential stakeholders are listed with their impact on different spheres being marked.

Table 3.1: Stakeholder prime interest matrix for mineral policy.

| **Stakeholder group** | **Impact On (Areas)** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Environmental** | **Law &Order** | **Academia** | **Social** | **Economic** | **Legislation** | **Local Business** | **Confidence building** |
| Corporations and business | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Professional bodies | ✓ | | ✓ | | ✓ | ✓ | ✓ | |
| Minister & advisors | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Bureaucracy Civil Servants | - | ✓ | ✓ | - | ✓ | ✓ | ✓ | ✓ |
| Elective representatives | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Local government | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Military | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| International Bodies | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ |
| Media | ✓ | ✓ | - | ✓ | ✓ | - | ✓ | ✓ |
| Religious People | - | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ |
| Trade Unions | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| National NGO's | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Indigenous people | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

A comprehensive plan can also be made with the help of this matrix so as to give indication of which stakeholders are required at which stage and their respective communication level. While analyzing the stakeholders, a power/interest matrix helps to investigate the importance and treatment of stakeholders (see Figure3.1).

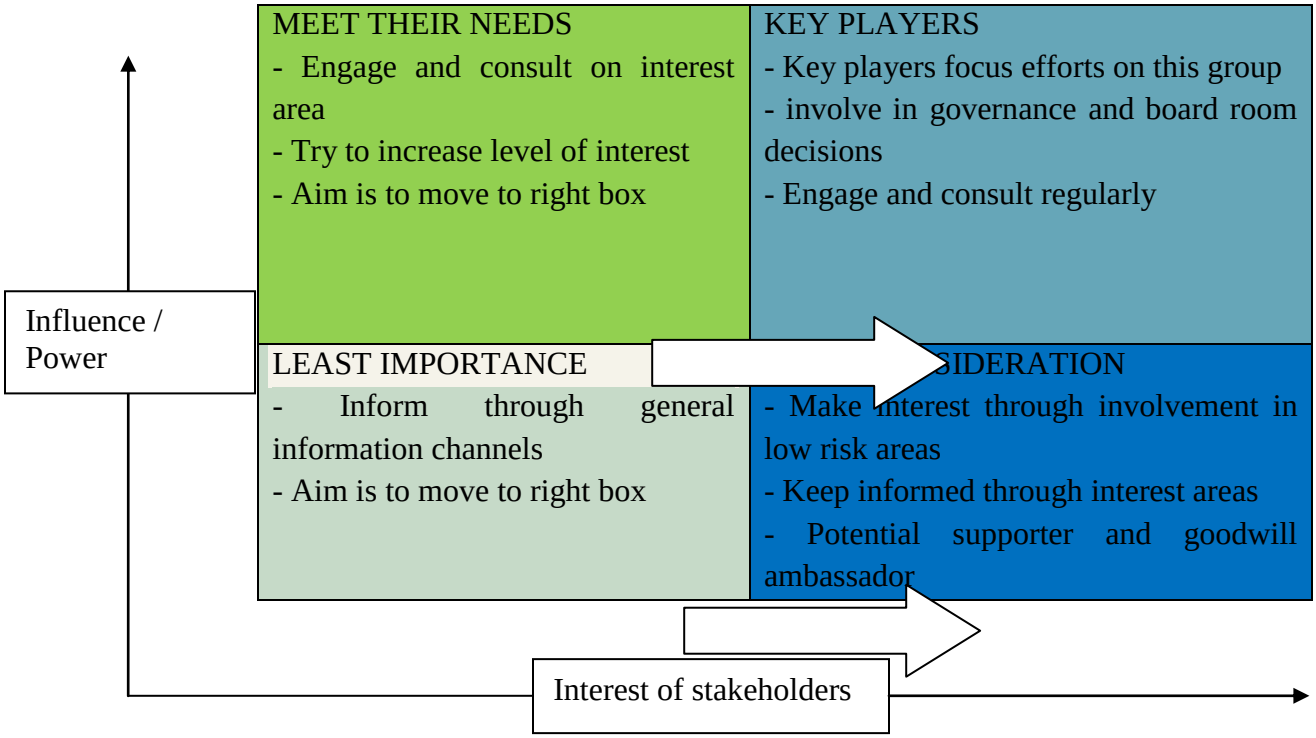



Figure 3.1: Power influence Matrix. Source: Olander (2005).

### 3.3.1 Government and its subsidiaries

The Government of Pakistan is the primary stakeholder in the formulation of the mineral policy. Within the government, its subsidiaries like Ministry of Mineral Resource, Ministry of Finance, Ministry of Environment, Ministry of Water and Power, Ministry of Transportation (railways, PIA, and road transportation), Ministry of Law, Ministry of Education and Ministry of Manpower and Welfare are important stakeholders to play their roles in mineral policy. NMP-2 was formulated without the consultation of these intergovernmental stakeholders. The process of policy formulation (see Figure 1.4) was not followed in true letter and spirit. Interdependency between the Ministry of Water and Power, Ministry of Finance and Ministry of Law are pivotal for smooth functioning of the mineral sector. However, the impact of one sector on other was not assessed. The ownership of natural resources in Pakistan is in the hands of the provincial ministry of mineral resource but its beneficiation is the responsibility of the federal government. Moreover, no legislation for the mineral sector and its linkages with other ministries has been done. The Thar coal gasification project is an example of such failure, where procedural

delays, lengthy procedures, absence of joint venture guide, absence for legislation for beneficiation and bureaucratic hurdles were the reasons of the failure.

### 3.3.2 Law Enforcing Agencies (LEAs)

The security situation in Pakistan has made foreign investors reluctant to invest in the country. Unfortunately, all the minerals are located in the areas where the security situation is not very encouraging. Pakistan has suffered the death of approximately 43,000 persons and loss of US$ 102.51 billion till 2014 (Afridi, 2014). This loss has not included the probable foreign investment, which could have occurred if the situation was peaceful (Asghar, 2014). The role of LEAs is vital for ensuring security in these areas.

The Pakistan Army is the third line of defense, while, the Police and civil armed forces are first and second. However, due to the extreme situation of terrorism in Pakistan, the Army is being given the responsibility to deal with the internal security threats as well. For mining in the specific areas of Baluchistan and FATA, LEAs' consultation is vital for three reasons. These are:

a) LEAs have all the intelligence information about the activist and terrorist groups operating in that area.

b) Without the consultation of LEAs, the intensity of threat cannot be measured.

c) A carefully made plan is necessary to mine in the areas of trouble e.g. Baluchistan and FATA.

Current situation in FATA and Baluchistan does merit consulting the LEAs as a primary stakeholder in order to undertake any mining venture. In Figure 3.3, areas are shown where the banned terrorist organization named Tehrike Taliban Pakistan's (TTP) influence is marked (Renner, 2009). From the Figure 3.3, it is evident that almost 80% of the KPK Province is under the influence of TTP and Pakistan's Law and Constitution is still not enforced there.

Due to the influence of terrorists, any big mining venture is difficult to run around these areas. The Reco Dik project is just south of Waziristan and the entry to these areas is unsupervised. Due to the unsupervised entry from the South Waziristan to the Baluchistan, the terrorists have established their foot-hold in the North of Baluchistan and it is in partial control of TTP (Renner, 2009)(See Figure 3.2).

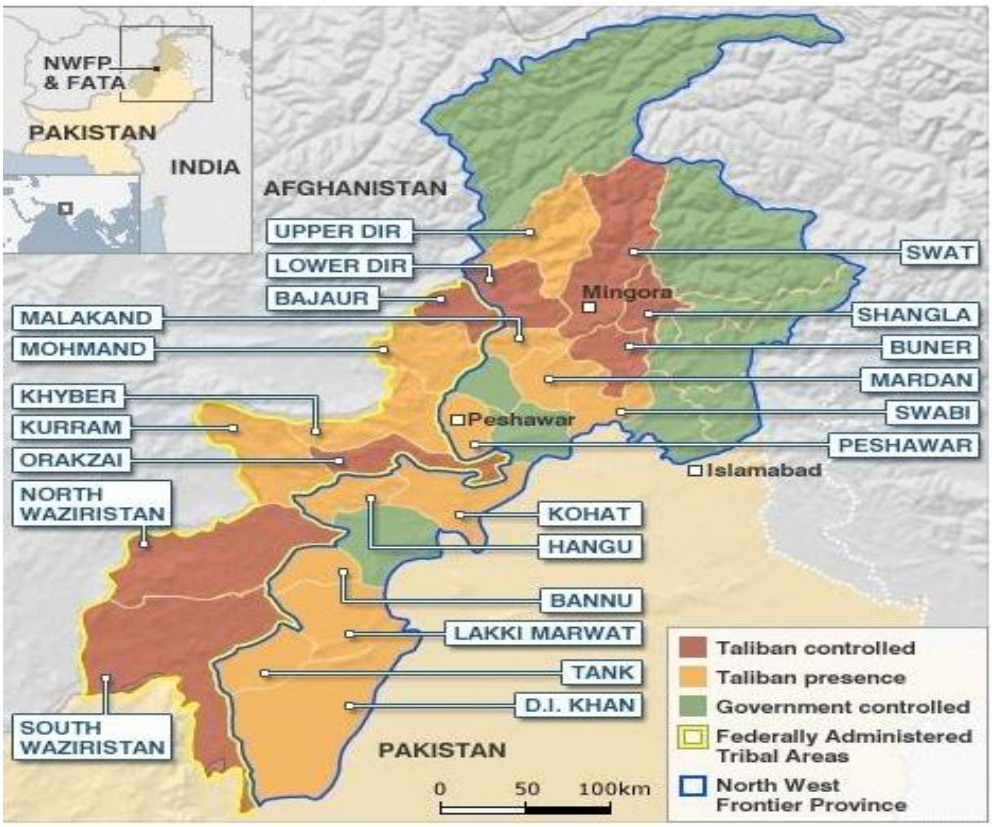


Figure 3.2: Areas of Pakistan showing Terrorist influence. Source: Renner (2009).

### 3.3.3 Religious Monarchs

Pakistan was established in 1947 on the ideology of Islam. Unfortunately, the spirit and ideology was not followed after its creation. Since its inception, none of the religious parties has taken the majority in the National Assembly, thereby showing a weaker concern of people towards religious parties. However, religious parties have significant street power to gather as many as 100,000 people anywhere in Pakistan (International Crises Group, 2011). 80% - 85% of Pakistan's population comprises of Sunnis, which are further subdivided into 4 groups, whereas, Shia sect comprises of only 10 - 12% of the population. Due to the division of the main sect into the splinter factions, inter-sect violence and conflicts are inbuilt in routine functions. Furthermore, large number of religious schools (Madrassas) in rural areas and prevailing religious culture restrict formal education. Pakistan's cultural diversity and the religious structure have formed a complicated framework, which has had an impact on legislation. Present formation of military courts after the 16$^{th}$ of December 2014 incident (in which 141 school children were shot dead by terrorists), was resisted by the religious parties in the name of Religious schools. All religious

factions filed a case against these military courts in Supreme Court of Pakistan which was upheld by Supreme Court of Pakistan (Iqbal, 2015).

### 3.3.4 Indigenous People

According to the census held in 2011, Pakistan's total population is 182.5 million (Brinkhoff, 2012) with total land area of 796,096 $km^2$. The main mineral-rich areas are in Baluchistan, Sind and FATA, with most of the country's population living in rural areas. Reko Dik, Thar Coal and gem stones project are located in these areas of terrorist influence. Unfortunately, in past 67 years, Baluchistan and FATA has been kept undeveloped due to political concerns. Pakistan's natural gas production was 39.2 billion cubic per annum in 2011 (Gomes, 2013), of which 84% was extracted from Baluchistan. The density of Baluchistan's population is only 18.3 persons/$km^2$. As Baluchistan and FATA have not been developed, unequal distribution of wealth has given birth to extremist organizations like the Baluchistan Liberation Army and Baluchistan Liberation Front. These organizations preach to the local indigenous people of the area to fight against any foreign company that works in their lands. As there is no legislation or land reforms, disputes like Reco Dik, Chamalang, and Sui terrorist attacks were the results. Most of the population resides in central urban cities due to undeveloped communication infrastructure and basic life needs in the rural areas (see Table 3.2).

Table 3.2: Population density of Pakistan.

| **Administrative Unit** | **Area Sq KM** | **1998 Population** | | **Density /Sq KM** | **Population** | |
|---|---|---|---|---|---|---|
| | | **Number** | **%** | | **Urban** | **Rural** |
| Pakistan | 796,096 | 132,352,279 | 100.0 | 166.3 | 32.5 | 67.5 |
| KPK | 74,521 | 17,743,645 | 13.41 | 238.1 | 16.9 | 83.1 |
| FATA | 27,220 | 3,176,331 | 2.40 | 116.7 | 2.7 | 97.3 |
| Punjab | 205,345 | 73,621,290 | 55.63 | 358.3 | 31.3 | 68.7 |
| Sind | 140,914 | 30,439,893 | 23.00 | 216.0 | 48.8 | 51.2 |
| Baluchistan | 347,190 | 6,565,885 | 4.96 | 18.9 | 23.9 | 76.1 |
| Islamabad | 906 | 805,235 | 0.61 | 888.8 | 65.7 | 34.3 |

Source: PBS (2012).

For successful mining operations to commence in these mineral-rich areas, it is imperative to include the indigenous people in policy-making. The policy made should address the basic needs and developmental needs of these people so as to refrain them from engaging in armed conflict.

### 3.3.5 Communal Mining Institutes

Efficient and effective mining institutes are indispensible for a successful mining sector. The main functions of mining institutions are:

a) Formulation of mining policy and its implementation keeping in view the vision, mission, and strategy of mineral sector;

b) Formulation of mining legislation, in the light of constitution of Pakistan;

c) Establishment of norms, regulations and its enforcement;

d) Administration of mining rights and resolution of conflicts; and

e) Establishment of a bank with sound technical knowledge of mineral imports and exports.

It has been observed that overlapping of mandates, authorities, jurisdiction and political interference is the hallmark of both mineral policies and the mineral sector in Pakistan (Ahmad, 2014). Mining institutions work under many constraints. The legal framework in Pakistan could not be implemented due to the constraints in manpower, financial constraints, technical knowhow, skill shortage. Political interference in mining operations will be discussed in chapter 6: Thar Coal - a case study. It is pertinent to note that because the mineral policy formulation process and stakeholder consultation was not followed, the infrastructure of mineral sector has not been able to work effectively and efficiently. Public mining institutions were one of the main facets of stakeholder program for formulation of mineral policy. Some public mining institutions which are mandatory for mining sector in Pakistan are discussed below.

**a) Central Mining Administration:** In Pakistan, mineral resources are under the jurisdiction of the Ministry of Petroleum and Natural Resources. The Mining sector is controlled and administered by the ministry under the supervision of the Federal Directorate of Mines. The Federal Directorate of Mines is divided in two divisions. The primary task of these divisions is to control the importation and exportation of minerals, supervision of GSP, keeping a record of mineral production and supervision of State-owned mineral companies. The Federal Directorate of Mines is staffed with a total of ten personnel including

the Director General. This small amount of staff members cannot handle the mandate of the Federal Directorate including the handling of foreign investors.

Mining cadastral system acts like a performance management tool for the industry. It also helps to improve the performance of the mineral sector. In Pakistan, there is no central mining cadastral system which links the whole country. Although, there is a computerized system in every province which keeps a record of licensing, (applied, approved or cancelled) through provincial cadastral systems, a centralized database is still lacking.

**b)** **Provincial Mining Administration:** The organization of provincial mineral administration is based on the National Mineral Policy 2012, but there is no clarity in the organization's mandate, responsibilities and jurisdiction of power. As the policy was made without engaging the provincial tentacles, every province has interpreted the organization according to its own preference (see Table 4.1).

**c)** **Geological Survey of Pakistan (GSP):** Geological information is the key for attracting FDI. For mining companies, geological information is vital for planning the mining operations and investment plans. Geological information should become the part of the country's economic activities as it provides the support for decision making. GSP headquarters is located in Quetta with branch offices in Islamabad, Lahore, Quetta, Peshawar and Muzaffarabad. It works under three main wings. National Geosciences Research Complex was established in Islamabad, which was the main research facility. The establishment of main research facility in Islamabad, which is 1630 kms from Quetta, had developed procedural delays and communication lapses (see Figure 3.3).

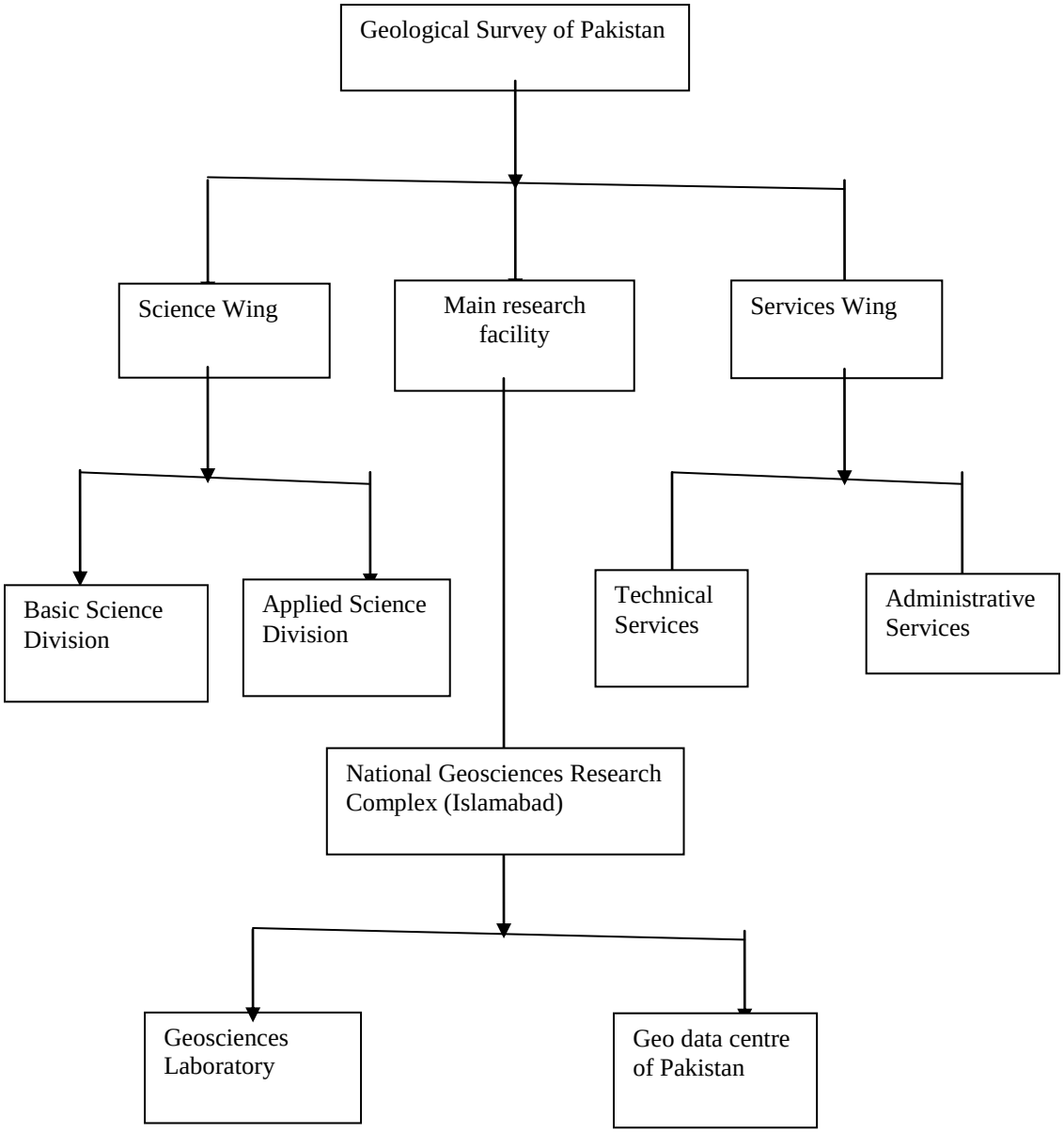



Figure 3.3: Geological Survey of Pakistan. Source: GSP (2014).

After the finalization of the concept of GSP and its reorganization, it was taken that the institution was not working according to the mandates stated in the National Mineral Policy 2012. Currently, it is suggested that the headquarters will be relocated from Quetta to Islamabad. It will help to coordinate the activities centrally. The mandate for each office would be realigned. It is further recommended that GSP will supervise the activities of provincial branches as:

a) Seismic, engineering and hazard geology for Quetta branch;

b) Coal and urban geology for Karachi branch;

c) Sedimentary and environmental geology for Lahore branch; and

d) Structural and metamorphic geology for Peshawar branch.

The cost for relocation and shifting of manpower, equipment and infrastructure would have been reduced to minimum if this adjustment was done in the beginning of establishing the institute. As the reorganization of GSP was done in the absence of stakeholders, the result was the wastage of time and resources. The above-mentioned activities will require 20% more staff, with an increase of 15% in operational costs (Sohail, 2013). The main focus of GSP should be the mapping and preparation of geological data of Pakistan. Unfortunately, there are no rules defined in NMP1 and 2 regarding mapping priorities and coordination between provinces for licensing to complement the federal plans on mineral sector requirements. Unfortunately, GSP, which is a vital organization and acts as a back bone for mineral industry in Pakistan is still in the early phase of development.

**d) Competence of Institutional Structure:** One of the main hurdles for the development of the mineral sector is political divergence among the provinces. Baluchistan generates the biggest share of the minerals revenues but the economic development share for Baluchistan remains the lowest priority. There is an uprising for the rights of the people of the Province and it is important for peace in the provinces and that the Baluchistan, Sind and KPK people should be taken on board for future programming. At provincial level, NMP 2 addressed this issue partially by formulating a political consultative forum. It is an advisory body in every Province called the Mineral Investment Facilitation Authority. Its goal was to provide the forum for all the stakeholders to arrive at a unanimous decision after a collaborative effort.

The Establishment of Mineral Investment Facilitation Board at federal level was another step towards the consultative forum. The board is to consist of the Prime Minister, Chief Minister, and Chief Government Officer for FATA and Chief Finance Officer. Unfortunately, these bodies are not working as per the vision and aim of the Policy due to the absence of a clear mandate and availability of top leadership (World Bank, 2003). There are still many missing links in the functioning of the boards and authorities, which was a result of non-adherence of standard policy- making process along with stakeholder consultation.

## 3.4 Conclusion

Chapter three depicted the basic definition, explanation and identification of stakeholders along the mining value chain. In this chapter the stakeholders which were identified were grouped into the framework according to the power influence matrix. By creating a stakeholders matrix, it was revealed that stakeholders such as financial institutions, executive bodies and law enforcing agencies, were critical. Additionally, the critical review in the chapter describes the fact that the key areas which were supposed to be addressed by the government were neglected. The provincial governments were at liberty to legislate and implement by policy documents and notifying federal government through a public gazette (United States Aid for International Development, 2014 b) .

However, it has not been done so far. Without realizing and evaluating the aims of NMP1, government had shifted its aim in NMP-2. NMP-2 comprised of 28 pages without any guideline for legislation and key aspects of mining operations. The strategic deficiency was felt after formulating NMP-1 and 2, as different subsidiaries of government as well as other stakeholders were not consulted, keeping in view their inter-linkages and dependencies on each other. The absence of stakeholders in Pakistan's mineral policy-making has resulted in the downfall of mineral sector.

The lack of transparent, equitable and efficient mineral policy has shown non-readiness of the sector. As a result, Pakistan has not extracted any minerals in large scale and mega projects have not started yet. Antofagasta Barrack Gold debacle is the clear indication of lack of clear policy and implementation. Due to non inclusion of stakeholders, the policy needs to be developed further and adjustments need to be done for smooth functioning.

In the next chapter, the Mineral Policies of Pakistan would be critically analyzed in the absence of stakeholders and the impacts of their absence in policy-implementation would be evaluated.

# CHAPTER FOUR

## 4. Outcome of Stakeholders' absence in Policy-making

### 4.1 Introduction

Every organization has certain goals and objectives to achieve. It is imperative for every organization to meet its goals and objectives through some policy which was set for the future. It is proved with current research that involvement of stakeholders positively affects the policy formulation, adjustment, development and implementation (Schalk, 2011). The effects can be linear and non-linear but they exist in controlled environments. We refer to controlled environments as "the impacts of these effects can be varied by adjusting the role of stakeholders" (Meyers, 2012). By interacting with stakeholders during the policy formulation process, the impact and results can be supervised and adjusted according to the future plan.

Another core benefit of involving the stakeholders during policy formulation process is sharing the ultimate success and failure among different parties and vice versa. In case of failure, there will not be a sole proprietor for the failure and the reasons of failure can easily be identified by identifying the stakeholder involved in that process. Local government players increasingly involve themselves in interactive Policy-making in order to give access to non-governmental actors in decision-making (Denters, 2003).

In the absence of local players, it would be extremely difficult for non-governmental stakeholders to play their part effectively in policy formulation. Stakeholder involvement by government and non-governmental players can be termed as collaborative governance. The goal of stakeholder involvement is to maximize the performance of policies and give future guidelines for legislation.

Without the involvement of stakeholders, sometimes it would be a very lengthy process to arrive at a comprehensive and workable policy document. Pakistan is bestowed with considerable geological potential but up till now, the share of mineral industry has remained less than 1% of its GDP. If Pakistan had sound mineral policy, the mineral sector can contribute US$ 1.5-2.0 billion and 2-3% increase in GDP with inter-linkages and development of other tertiary sectors as well (World Bank, 2003). In subsequent sections, the impact of absence of stakeholders will be analyzed.

## 4.2 Evolution of Pakistan's mineral sector in absence of stakeholder consultation

### 4.2.1 Organizational Issues

The National mineral policies were formulated under the supervision of the Pakistan Mineral Development Corporation, which works under the administrative arrangements of the Ministry of Petroleum and Natural resources (GoP, 2015). The mineral sector of Pakistan has been a top priority for its past and the current governments due to the presence of considerable geological potential. In 1995, to facilitate the governance of the sector, the government established the Mineral Investment Facilitation Board under the chairmanship of the Prime Minister. In Provinces, a similar body called the Mineral Investment Facilitation Authority under the chairmanship of provincial chief ministers was established. These boards were the replica of each other with no division of jurisdiction and responsibilities (World Bank, 2003). Moreover, separate departments of Mines and Minerals were established mainly for granting licenses, payment of fees, royalties and regulation of day to day operations. NMP-1 described the organization of provincial department of minerals clearly but every province interpreted the clause according to its own understanding. It was mentioned in the NMP-1 that every provincial department of minerals will work with two divisions for exploration and licensing but this rule was violated (see Table 4.1).

Table 4.1: Provincial agencies for minerals and its divisions.

| Agency | Staff | Divisions |
|---|---|---|
| DG Minerals, Baluchistan | 300 | - Exploration<br>- Mines and Minerals<br>- Licensing |
| DG Mines and minerals Punjab | 700 | -Minerals development corporation<br>- Mining and Mineals<br>- Mining inspection |
| DG Minerals KPK | 240 | - Exploration and minerals<br>- Licensing<br>- Inspectorate |
| DG minerals Sind<br># Separate body for Thar Coal | 150 | - Exploration<br>- Administration |

| | | |
|---|---|---|
| | | - Inspection |
| DG minerals, Central Administration | 10 | - Geology and mining<br>- Economy and laws |

Source: World Bank (1995).

Despite the clear violation of the rule in National Mineral Policy, the federal government did not take any remedial measures. One reason for this violation was that the federal government did not consult the provincial government in the formulation of the mineral policy as a stakeholder. Provincial governments adjusted the National Mineral Policy according to their own circumstances and understanding. Every division working in the Mineral Directorate of a province is different from the other. As a result of different organizational structures, information-sharing, communication, legislation and implementation of any policy has been difficult to develop.

### 4.2.2 Functional gaps of the mineral policies

According to the NMP-1 and 2, the federal government is responsible for the exploration, beneficiation and use of oil, natural gas and nuclear minerals all over the country. The Federal government also has control over the minerals of Federally Administrated Tribal Areas (FATA) and Islamabad capital territory (ICT). Apart from the oil, gas and nuclear minerals, all minerals are in the direct control of the provincial agencies (Economic Times, 2013). Thus, it is clear that the federal government only has exclusive authority over the exploration and development of:

a) Petroleum resources;

b) Natural gas and natural resources necessary for the generation of nuclear power generation; and

c) Minerals in the jurisdiction of FATA and Islamabad Capital Territory.

In the case of environmental protection laws, it is evident that the environmental protection agency has direct authority to review and approve the initial environment examination and environment impact assessment. The Federal environment agency is in direct control of supervising the environment management plan and compliance of rules for licensing and prospecting. Delegating the authorities of the above-mentioned subjects to the different organizational departments has created interdepartmental conflicts, gaps and ambiguity in functioning of the sector (Josh *et al.*, 2014).

Environmental sustainability is an area for major responsibility and cost consideration for foreign investors. International companies are reluctant to invest in a sector, which is potentially conflicting among its own tiers and works with overlapping of authority in environmental area. The Mineral policy (2012) has successfully explained some of the areas which were left out in previous Mineral policy of 1995. However, certain areas need immediate attention for smooth running of mining operations. These areas include:

a) Assuring that mining activities in an area will benefit the local communities (sustainable development and indigenous people);

b) Prevention of the use of gem stones and precious metals to fund armed conflict and terrorism (Baluchistan and FATA); and

c) Equal sharing of revenues to the concerned province and development of mined area (Equal distribution of wealth).

It was observed that after the discovery of natural gas in Sui, Baluchistan in 1956, revenues were distributed unequally by federal government, which led to unrest among the people of Baluchistan. In KPK and Baluchistan provinces, 97.3% and 76.1% of population respectively live in rural areas due to undeveloped infrastructure (see table 3.3). The most number of terrorist attacks, death toll and separatist movements has been recorded in Baluchistan, FATA and Sind areas since 1971. Social unrest, undeveloped infrastructure, inequality in social structures and unjust decisions, made these areas the trigger point for terrorist activities. Unfortunately, majority of the minerals are located in these areas (see Figure 4.1).

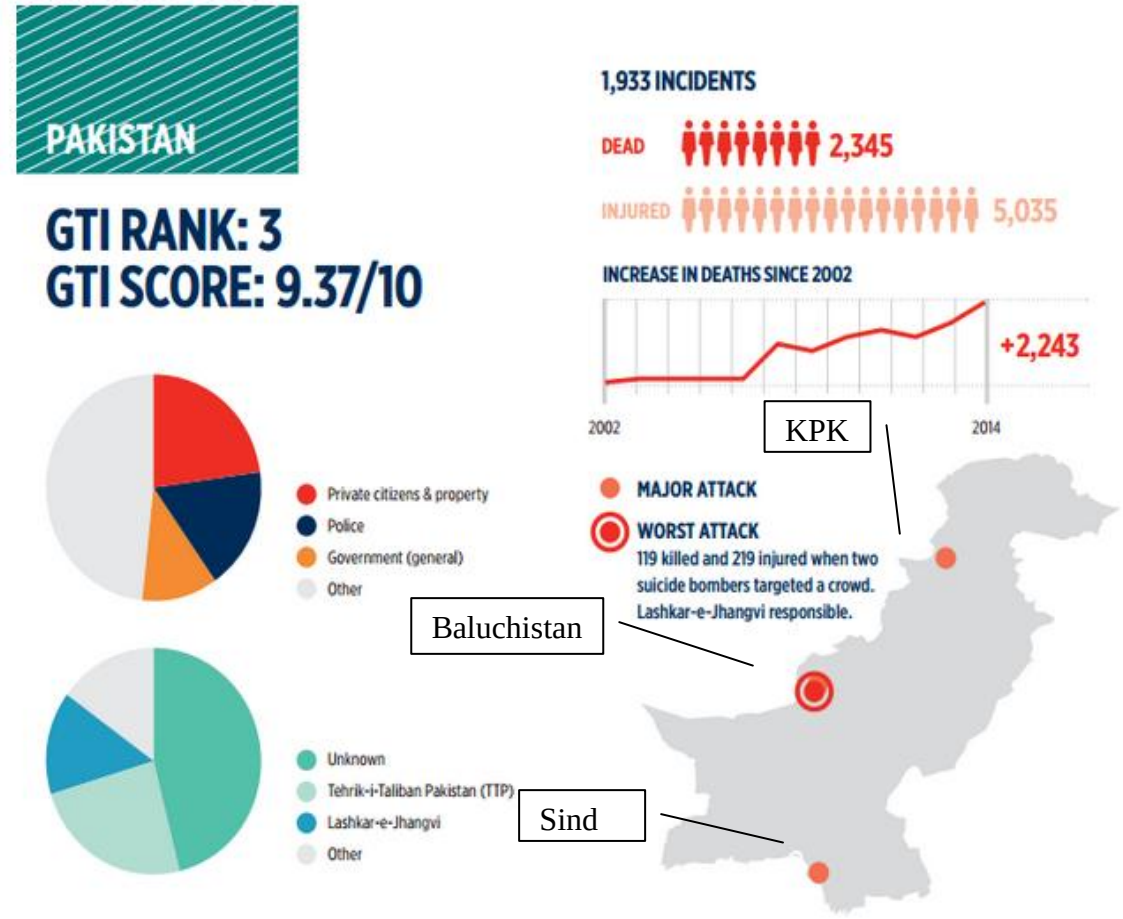



Figure 4.1: Impact of Terrorism in Pakistan. Source: Global Terrorism Report (2014).

In Pakistan, there is no fundamental and constitutional law, which governs private mineral rights. Mineral rights in Pakistan are the jurisdiction of provincial governments. This system is workable in federal form of government where federations enjoy autonomous rights. The NMP 1 and 2 emphasize on this issue by clearly stating that international companies can get assurance through negotiations and execution of mineral agreements from provincial government. However, international companies prefer to negotiate with federal government on prospecting and mineral rights and procedures in the absence of provincial government system. The legal gap exists due to the absence of stakeholder participation in the policy-making process.

Due to poor planning and execution, there has been a lack of standardization in many areas of the policy which has prevented the mineral sector to progress. Both mineral policies have been made by different groups of people in the industry without

stakeholder consultation, by which uncertainty and ambiguity has crept in the system. The lack of standardization was due to the absence of a clear legal framework defined in the mineral policy. The lack of standardization has lead to lack of transparency in the prospecting rights, exploration rights and prolonged procedural delays. International investors tend to prefer to invest in countries where the processes are quick, transparent, investor-friendly and negotiable.

### 4.2.3 Technical gaps and lack of standardization

The National mineral policies were made without following the mineral policy development process. There are many areas of the mineral policies, which require standardization of operations. However, in the light of the NMP-2, every province had defined the law as per its own understanding. As a result, there has been a lack of standardization in the identification of the boundaries of reconnaissance, prospecting and mining areas.

There are three methods of gaining reconnaissance and prospecting licenses. Map-staking, claim-staking and landmark plotting which are used to identify the area to reconnaissance. Internationally, map staking is in vogue and international companies do not rely on claim staking. Lease and licensing areas are recognized by the coordination on a map rather than identifying on ground with the help of landmarks and then plotting them on a map. Most of the mining companies rely on the national grids established by the geodesic system (e.g. Peru, Madagascar) or standard coordination of grid references linked with topographical maps (e.g. Chile). Lack of standardization in this area has tremendously increased the time for lease application and application for a reconnaissance right or prospecting right to 120-150 days. To attract FDI, the maximum time for processing the application should not be more than one to two weeks.

Also, there is lack of standardization in terms of reconnaissance and exploration rights among the provinces. Reconnaissance rights are generally inclusive but may be exclusive. Individual prospecting license is at the discretion of the provincial government and it does not mention that whether reconnaissance rights are exclusive or not. This further complicates and lengthens the process. Unfortunately, there is a great diversity among the provinces for the areas for prospecting and reconnaissance. NMP-2 could not define the technical terms which resulted in diversification and implementation of the mineral policy (see Table 4.2).

Table 4.2: Non-standardized duration and prospecting areas among provinces.

| Province | Area (Square KMs) | Duration (Years) |
|---|---|---|
| **Punjab** | 5,000 | Data not available |
| **Sind** | 100 | 3+ 1 year renewal |
| **Baluchistan** | 10,000 | 3 +2 times 3 years renewal |
| **KPK** | N/A | N/A |
| **Gilgit-Baltistan** | Not decided yet | Not decided yet |

Source: NMP-2 (2012).

Finally, there has been a disagreement in the settlement of the conflicts. All the appeals are forwarded to the secretary of the concerned department responsible for licensing. In Punjab and Baluchistan, the decision of the secretary is final but in Sind, the decision can be challenged in the court (Thar Coal). This functional gap has invited corruption and kick-back culture in Sind, which has resulted in the Thar Coal Debacle.

### 4.2.4 Fiscal gaps for attracting FDI

While formulating the mineral policy for Pakistan, one aim was to attract the foreign direct investment for the sector. Unfortunately, Pakistan has not achieved the real value of competitiveness in terms of the tax regime for the mineral sector. A standard mining operation is instrumental to the vast range and value of taxes received by a country. Taxation of mining sector is complex due to the uniqueness of its operations. South Africa implemented its Mineral and Petroleum Resource Royalty Act, after concentrated debate in 2008. The rate of royalty fluctuates with the profitability of the company as expressed in EBIT and with the grade of refinement (Cawood, 2011). South Africa's royalty rate is calculated on the basis of refined and unrefined formula. For refined minerals, the reduced rate of royalty is more to encourage the companies to beneficiate in country. However, Pakistan has no such tax regime which can be used for her economic development and act as a tool for attractiveness for foreign investors (Government of KPK, 2014). Some key attributes of Pakistan's fiscal regime is tabulated below in Table 4.3.

Table 4.3: Key attributes of Pakistan fiscal regime.

| **Features** | **Rate of tax** |
|---|---|
| Public listed companies on ISE and KSE | 30 % Income Tax |
| Private or nonresident companies | 35 % Income Tax |
| Import tax on plant and machinery | 5% |
| Mineral exports | 0 as GST |
| **Royalty rates** | |
| Precious stones | 10% |
| Precious metals and semi precious stones | 3% |
| Base Metals | 2% |
| Others | 1% |

Source: (GoP, 2014).

Pakistan has failed to provide the competitiveness for international companies. Other countries of the world have competitive IRRs and share of government in pretax projected cash flow. The tax regimes and the competitiveness of other countries are shown in Table 4.4.

Table 4.4: IRR and government share of revenues of other countries.

| Country | IRR | Government Share in Revenues |
|---|---|---|
| **Chile** | 18.36 % | 16.67% |
| **LAO PDR Case 1**[6] | 17.23% | 35.28% |
| **Lao PDR Case2**[7] | 17.08% | 31.92 % |
| **Papua New Guinea** | 16.87% | 38.5% |
| **Mongolia** | 16.83% | 34.52% |
| **Canada** | 16.37% | 41.68% |
| **Pakistan 30% tax rate** | 15.54% | 43.31% |
| **Indonesia** | 15.00% | 39.45% |
| **Pakistan 35% tax rate**[8] | **14.89%** | **43.31%** |

Source: World Bank (2011).

[6] 33.3% profit tax rate & 2 years exempt period followed by 50% tax reduction for 2 years.
[7] 20% Profit tax rate and no tax reduction option.
[8] Foreign Investor Company subject to 35 % tax, unless shares are listed in stock exchange.

### 4.2.5 Explicit fiscal impediments

The Basic aim of the National Mineral Policy is to boost the mineral sector and increase the share of mineral sector in GDP through attracting foreign direct investment. International investors, however, look for competitiveness and inherent benefits before investing in any country. International players like Anglo American, AngloGold Ashanti, BHP Billiton, Impala, Lonmin and De Beers which operate globally, do not like to invest in countries where legislation is weak, opaque and have uncertainty levels that are high. Certain specific issues relating to Pakistan's National Mineral Policy and fiscal hiccups which are not addressed and deter the investment are discussed below:

a) **Minimum corporate tax:** In the National Mineral Policy 2012, 0.5% of minimum corporate tax was imposed without realizing the cyclical nature of operations in mining. Due to the fluctuations in international market, mining companies suffer the Hog Cycle[9]. It is normal for mining companies to suffer loss in the times when the prices are low. The imposition of minimum corporate tax in the times of loss is discouraging for mining companies operating in a country where legislation is already weak. There should be a provision to offset the income tax and government share in times of loss.

b) **Additional Profit Tax (APT):** In the National Mineral Policy 2012, it is stated that government may require an investor to enter into an agreement of additional profit tax. However, it is not clearly stated whether the APT will be treated as additional profit or economic rent tax. Another issue of APT is that it shaves off the profits in good times when mining companies can earn additional revenues for rainy days. This APT acts as an unhealthy measure and a matter of dispute between the government and investors. Enhanced royalty is another negative aspect of the National Mineral Policy 2012. It states that royalty will increase proportionally on additional profits (capturing economic rents without justification by government) which are not acceptable by the mining companies.

c) **Goods and Services Tax (GST):** Small-scale mining companies pay goods and services tax on purchase of their goods but find it difficult to get refund of the GST from the government. Inability to get the refund of GST increases the operating cost by 15%, which renders most of their projects uneconomical (World Bank, 2003).

[9] Cyclic fluctuation of prices is normally of 25 years time span.

d) **Central Excise Duty (CED)**: In the fiscal legislation of Pakistan (1973 Constitution), 1% CED is levied on the sales of minerals. It was decided in the National Mineral Policy 2012 that provincial royalty will replace the CED (which goes to federal government) but in reality that does not happen. CED is an additional burden on mining companies.

e) **Losses carry forward**: In paragraph 9.2.3 of the National Mineral Policy 2012, no clear statement and explanation of loss carry forward is given (National Mineral Policy-2012 attached as Annex A).

f) **Undefined terms**: Since stakeholders were not consulted during the formulation of the National Mineral Policy, there were many terms left unexplained in the document. Sind government levied the provincial royalty tax on "minerals value at pit's mouth", whose meaning was interpreted in many different ways by the other provincial governments. There is no joint code e.g. SAMREC in South Africa, for elucidation of the terms which can explain the terminologies commonly for the understanding of investors and government.

The budget deficit of Pakistan is increasing with every passing year. Pakistan presented its surplus budget in 2006 with positive economic growth of 4.3% (Qureshi, 2011) (See Figure 4.2). Since 2007, Pakistan had shown negative economic growth with deficit financing in national budget

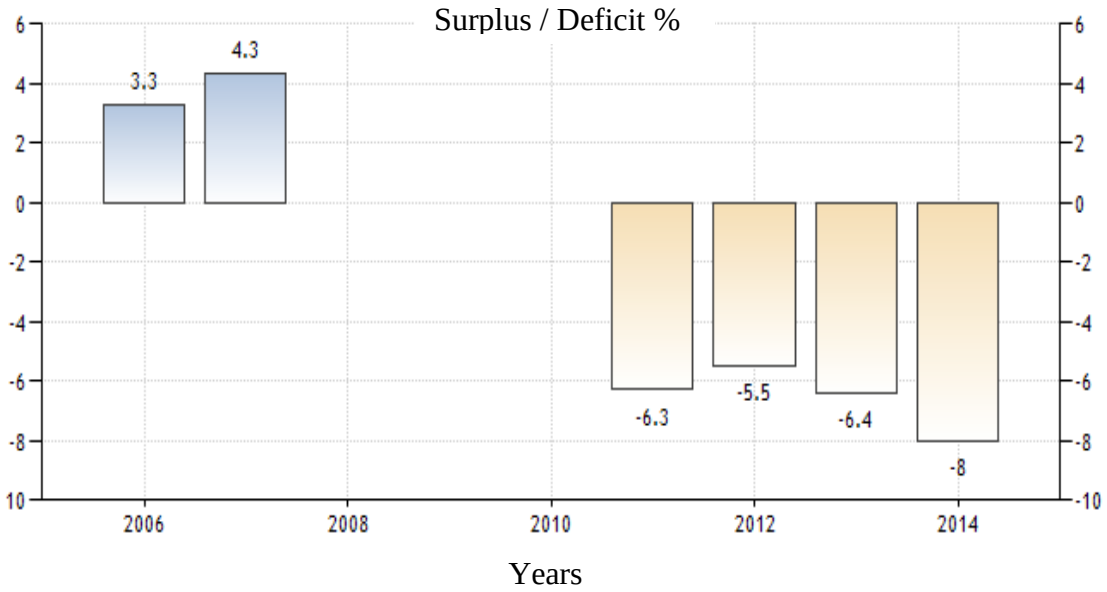



Figure 4.2: Government of Pakistan budget. (Source: State Bank of Pakistan, 2014).

In the times of low investment, non-developmental expenditure on war on terror and defense expenditure coupled with political instability will further weaken the economy of Pakistan. Therefore, there is a dire need to take concrete steps to strengthen the mineral sector.

## 4.3 Conclusion

In the chapter, it was revealed that the involvement of stakeholders in formulating a business policy will have positive effects on the business cycle. These effects can be linear or non-linear depending on the role of the stakeholders. The absence of stakeholder consultation left many gaps in the Mineral policies of Pakistan. NMP-2 could not address the legal hiccups of NMP-1. It can be deduced from the chapter that the impact of stakeholders' absence can be seen in the mal-functioning of the mineral sector. This is evident in that even after the announcement of the National Mineral Policy in 2012, no new project and foreign direct investment has been introduced into the country. . In the case of GSP, after having 2 national mineral policies failed, changing the vision, organization and mandate of such institute is a costly business. However, this could have been avoided if stakeholders were consulted with joint, concentrated and focused effort in the formulation of National Mineral Policy and its interlinked organizations. It appears that international investors are still looking for some concrete legislation and measures for the mineral industry in Pakistan.

There has been a disparity observed between the legislation for exploration and development of minerals and the environmental legislation. Both laws were made independently, which has resulted in the inconsistency in both of the laws. There is also no fundamental and constitutional law which governs the private mineral rights in Pakistan. Therefore, there is a disparity between the mineral laws and Federal legislations. Development of Mineral reserves comes under the jurisdiction of provincial government, while beneficiation comes under the Federal government. Due to these disparities, the Riko Diq and Thar coal projects have been held in abeyance.

In the next chapter, the tactical and strategic interaction of choices and consequences would be discussed. The critical choices available of mineral industry of Pakistan and the proposed value loops would also be described.

# CHAPTER FIVE

## 5. Tactical and Strategic Interaction of Choices and Value Loops

### 5.1 Introduction

Strategy and tactics are two interchangeably terms but have a vast difference in meaning. Strategy deals with the 'what' part of the question, while tactics deals with " 'how we can accomplish' aspect" (Olsen, 2014). Every business, organization and sector has limited number of resources and landscapes in which it is supposed to operate. With limited resources, one needs to tap on one resource at the expense of the other. It is pertinent to notice that one has to identify the core resource/issue which can be used as a competitive advantage. According to the strategy guru- Porter (1985), "competitive strategy is being different. It means deliberately choosing the different set of activities to deliver the unique mix of value". In Chapter three and four, the roles of stakeholders and the impact of their absence was briefly discussed. In this chapter, the interactive role of stakeholders will be discussed by keeping in view the strategic and tactical facet.

A business model and strategy are two different things. A Business model is the reflection of the business sector's realized strategy (Ricart, 2010). This strategy is the product of business sector's long term effort of its vision. Creating value loops for a sector, virtuous cycles and a framework of virtuous cycles with interdependent or common goals can be the long term solution for the mineral sector.

While analyzing the role of stakeholders, it is important to identify the characteristics of the stakeholders (Lienert, 2011). It will help to list all the attributes, roles and responsibilities before assigning any strategic task. By analyzing the characteristics of stakeholders, the implementation plan will be easy and there will be fewer conflicts between the stakeholders. In making the framework for an interactive horizon for stakeholders, it is important to place them in value loops.

### 5.2 Business Model

A Business model can be defined as the chronicle which describes how the business or a sector works. According Druker (1973), "a good business model can answer the question of what a customer wants and how we can deliver the value to the customers who is economic to us". In the mineral sector, one has to identify the characteristics and attitude of foreign customers in order to make a business model. A Business

model will also help to identify the value loops, which will feed the choices into consequences (Druker, 1973). Business models are the drivers of value-creation and a fundamental guide line for future business activities. Amit and Zott (2001) explained a business model as one that "depicts the content, structure and governance of transactions designed so as to create value through the exploitation of business opportunities".

For successful mining operations to be conducted in Pakistan, the government needs to adopt the competitive and comprehensive framework. There are two stages where the mineral sector can make its strategy and tactical plan in Pakistan (see Figure 5.1).

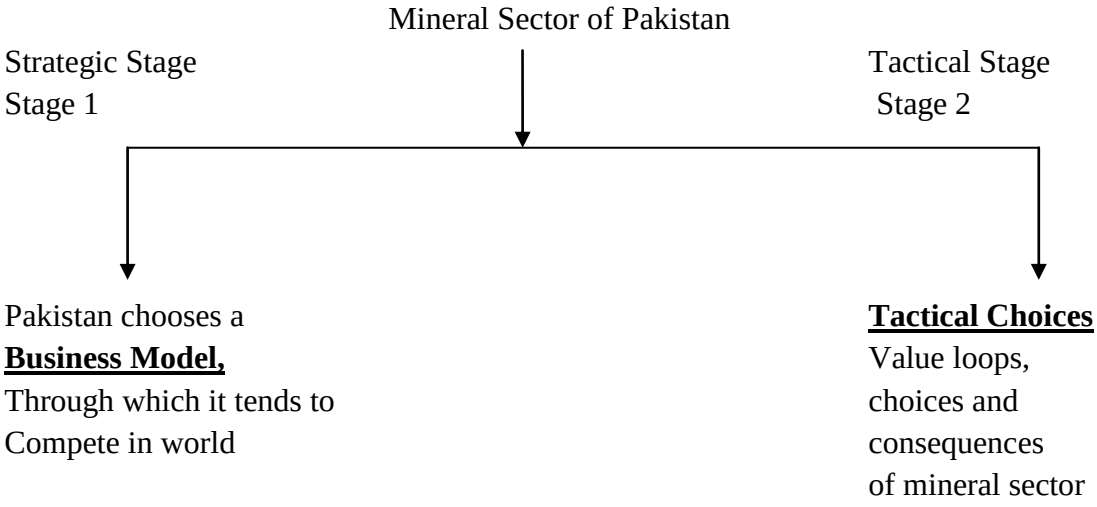



Figure 5.1: Stages of competitive process framework.

Pakistan has numerous business opportunities in the mineral sector and the mineral industry is still in its 'baby' stages. The side-stream, upstream and downstream linkages from the sector are yet to be established. Pakistan has been ranked 96 out of 181 countries in the ease of doing business index (Trading Economics, 2014). It appears that the country needs to adopt more flexible ways to attract the FDI.

## 5.3 Strategic choices and the value loop

Every sector has a unique set of operating qualities. The Mineral sector has some peculiarities which differentiate it from other business sectors. Mining has long turn-over time for profits to be realized, requires huge investment, and requires security of

tenure and payback period is quite long. While compiling the qualities of the mineral sector, it is important to critically examine the atmosphere of the mineral sector and its interaction with other stakeholders.

In a business model, an organization is run on the trade-off of choices. Choices are the different set of options available that would be favorable for the organization's future operations. They are the concrete set of options which management at higher level chooses for its operation in future. In a business model, choices are made within the set of options which best suits the sector (Amit and Zott, 2001). In the definition of a business model, content refers to the quality of information and resources; structure refers to the parties and stakeholders as well as their way of operating; and governance refers to the legal aspect of organization. In a more focused perspective, having a business model for the mineral sector is vital for the future of the mineral industry in Pakistan.

Strategic choices are the long-term actions favorable for the organization. For the mineral industry of Pakistan, there could be number of choices which government can choose from to set the business model for the sector (See Table 5.1).

Table 5.1: Proposed set of choices for mineral sector in Pakistan.

| Choices | Explanation |
|---|---|
| Consultation of stakeholders | Before formulation, all stakeholders are consulted for all areas of policy to be discussed |
| Clear Policy framework | Policy formulation process is followed which results in formulation of clear policy framework |
| Legislation | Law is made in light of mineral policy |
| Transparent Implementation | Rule of law to be made possible in every sphere of mineral sector |
| Flexible prospecting rights | As a result the mineral sector will run smoothly |
| FDI Attraction | Due to the choices made above FDI attraction is a consequence. |
| More investment in mineral sector | When the mineral sector will thrive, policy will be adjusted and developed according to the new challenges. |

| | |
|---|---|
| Growth In GDP | It is the ultimate consequence of the cycle. |

There are several other choices that can be available, keeping in view the SWOT analysis carried out in Chapter 2 and choose the best set of choices. One choice breeds another in a value loop. When choices are placed strategically in a value loop, a virtuous cycle (if it rotates due to its momentum) is the result. If the cycle does not function properly because of any missed link in the cycle, the cycle becomes a vicious cycle.

### 5.4 The Virtuous Cycle

When the choices are placed in a loop, which breeds the consequences, a virtuous cycle is obtained. In Figure 5.2, a virtuous cycle has been made for the Mineral industry of Pakistan with the help of the choices outlined in Table 5.1.

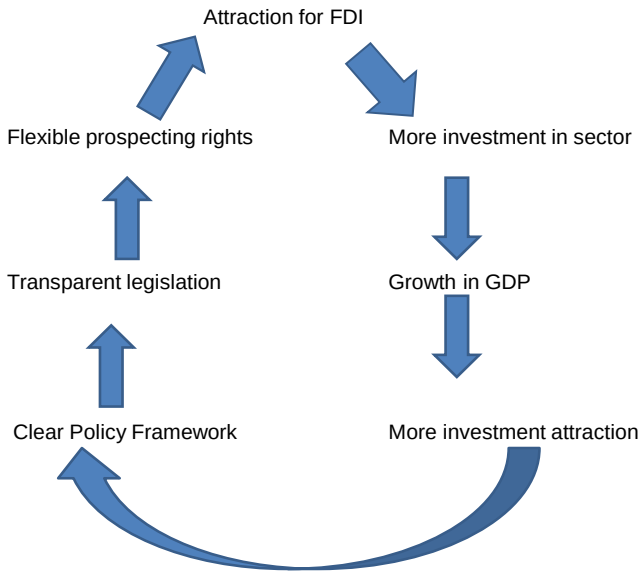



Figure 5.2: Proposed virtous cycle for Pakistan.

There can be other sets of choices as well, which can be arranged in order to obtain the common result. However, if a vital link e.g. terrorism, stakeholder consultation or strong policy framework is missed, the virtuous cycle will automatically be converted into a vicious cycle. The knowledge base in mining industry, skill development and

high literacy rate is a set of choices which breeds the results of high HDI and local employment. However, in the presence of terrorism and deteriorated law and order situation, the desired result is not achieved. The other factors which feed into the virtuous cycle are explained below in Figure 5.3.

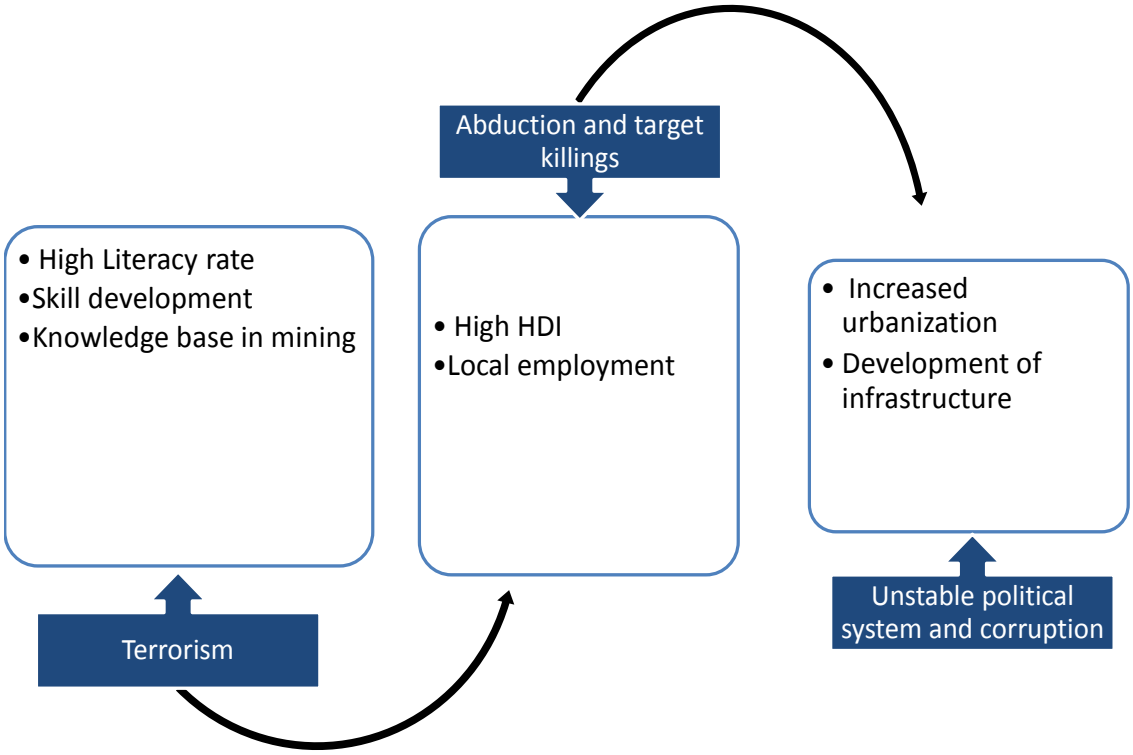



Figure 5.3: Vicious cycle of Pakistan.

It is important to note that there are certain supportive tentacles which feed positive strength into the value loop such as transparent business environment, clear and flexible legislation and supportive taxation. These supportive tentacles are called boosters for the virtuous cycle. They only boost the momentum to roll and gain more speed in short span of time[10] (Amit and Zott, 2001). The identification of boosters in virtuous cycle can identify the robustness of policy choices and they can be modified as necessary to get the desired results. A proposed virtuous cycle, along with different virtuous cycles, for the mineral sector of Pakistan is shown in Figure 5.4.

[10] Term "Booster" is updated concept of writer adapted from virtuous and vicious cycle (Amit and Zott, 2001).

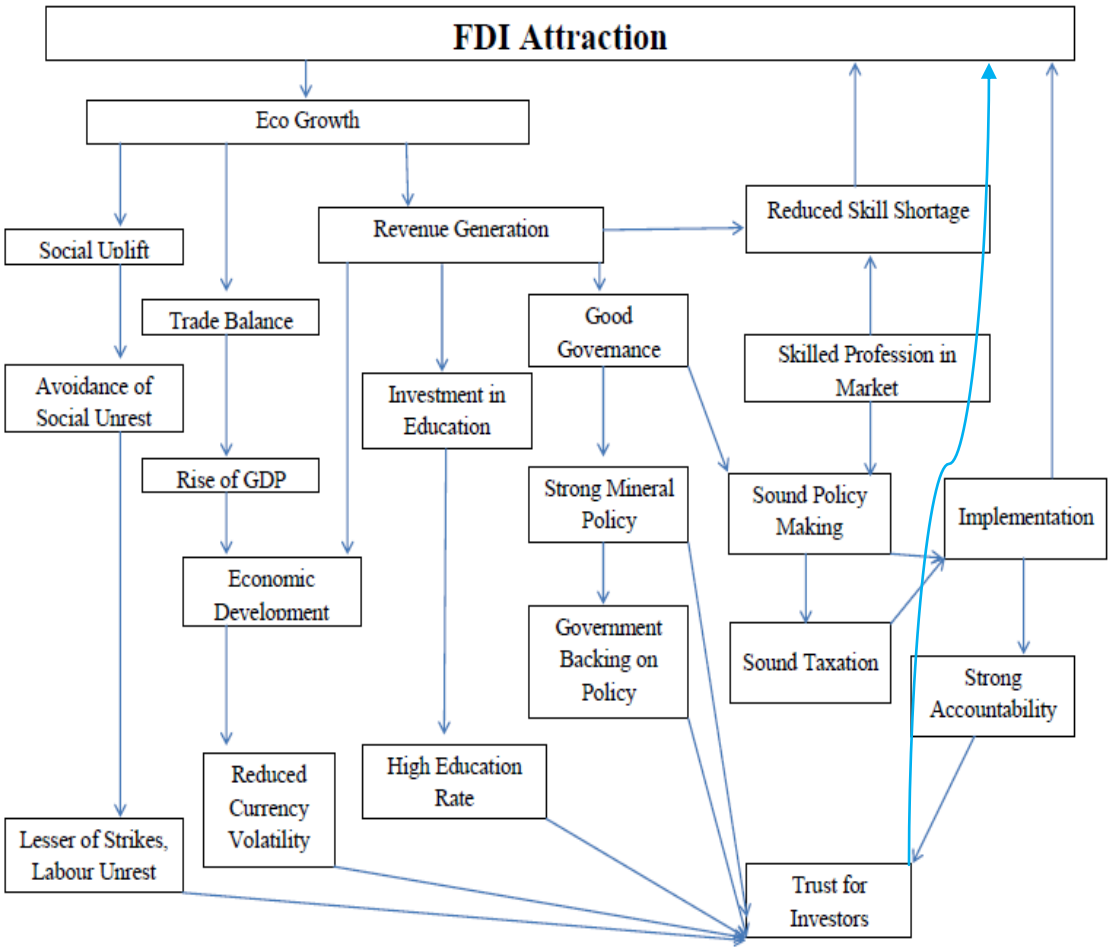



Figure 5.4: Proposed virtuous cycle for Pakistan Mineral Sector.

## 5.5 Strategic interaction of Stakeholders- Inter dependency

These boosters mentioned previously can also act negatively (refer to Figure 5.3). In the process of deciding on an option among the set of choices, careful planning is required. If we choose a set of choices which has negative boosters, it will become the vicious cycle with the input of negative boosters. No matter how good the choices are, the value loop would not roll and gain momentum. It might be one of the draw backs of Pakistan's mineral industry. Stakeholders have to be engaged on short-term and long-term for a sound Policy-making. Due to the absence of stakeholder's engagement in formulation of the policy, Pakistan's mineral sector is still in the phase

of adjustment. Reactive approach is adopted to face the hurdles in smooth functioning of the sector.

If we take the set of choices which has the positive boosters as feeders into the value loop, then the tactical set is adopted for the sector which covers the framework for Policy-making. Stakeholders have to be in interaction with each other and dependent on each other. In this way, they would be in close communication with each other.

## 5.6 Framework for the Mineral Industry

Every sector and business has a specific set of choices, which can be translated into the value loops. These value loops will form part of a tactical set of choices and become either a virtuous cycle or a vicious cycle. The business model is depicted as a choice of a business, which an organization adapts according to its business climate. The virtuous cycle with specific sets of choices are applied at the tactical stage. Figure 5.5 describes the interaction of the business model, strategy and tactics.

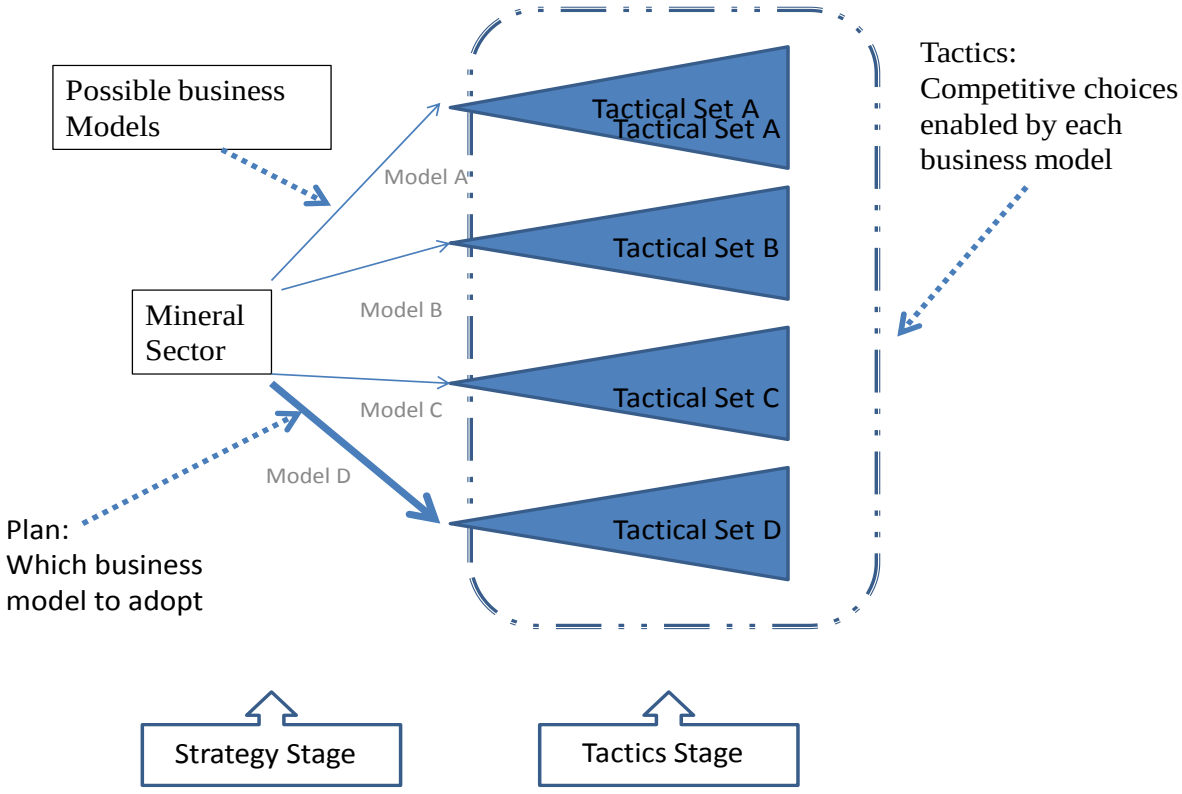



Figure 5.5: Tactical and strategic stages. Source: (Amit and Zott, 2003).

For the mineral sector in Pakistan, there is a need to devise the role and attitudes of different stakeholders. With the stakeholder engagement process, sets of choices and their consequences can be ascertained and chosen from the set of available and viable options. If the sector is successful in the formulation of value loops and its boosters, then the sector can adjust itself in a short span of time. In addition, with the absence of stakeholder consultation and prioritizing the choices, the mineral sector is still at the stage of adjustment.

## 5.7 Conclusion

This chapter revealed that in Pakistan's mineral industry, there is presence of negative boosters in its virtuous cycle. Due to the presence of these negative boosters, the virtuous cycle has turned out to be vicious cycle. It was supported in the chapter that until the time when stakeholders are interdependent and interact among themselves, the virtuous cycles would be difficult to gain their momentum. It is important to highlight that only those set of choices which make a value loop and have positive sets of boosters should be taken. By choosing the tactical set among other choices, government has to choose a business model to drive the mineral sector.

Every private business and business sector of an economy have a vision. The vision is usually broadly linked with other goals of the country. All goals of the business sectors are interlinked with each other towards a common vision. Adopting the business model with a set of tactical interferences for a better business sector is the hallmark. Until the time that the Pakistani government addresses the mineral reserves as a strategic asset for the economy, the sector will continue to work on reactive approach. .

In next chapter, the Thar Coal Project is discussed as a case study. The result of absence of stakeholders in policy-making process would be evaluated through this case study.

## CHAPTER SIX

# 6. Impediments in Mineral Policy of Pakistan for Successful Coal Utilization

## 6.1 Introduction

Pakistan is considered as a potential country for investment in the mining sector due its large deposits of minerals (see Table 6.1). Pakistan's GDP was expected to grow by two percent annually in 2009 (World Bank, 2014) but its mineral sector has not made any desired effect (as described earlier) on national economic development and gross domestic product (GDP) growth (See Figure 6.1). These reasons have been mentioned in previous chapters.

Table 6.1: Mineral deposits of Pakistan.

| | |
|---|---|
| Coal | 186 Billion Tones |
| Copper | 6,000 Million Tones |
| Gold | 1,656 Million Tones |
| Iron Ore | 1,400 Million Tones |
| Silver<br>Lead Zinc | 618 Million Tones<br>23.72 Million Tons |

Source: GSP (2014).

Pakistan has the world's 7$^{th}$ largest coal reserves, which are approximately 50 billion tons of oil equivalents (TOE). This is more than Saudi Arabian and Iranian oil reserves (Shamsuddin, 2014). Apart from coal, Pakistan has the world's 5$^{th}$ largest copper and gold reserves with an average production of 0.3 million tons of copper annually.




Figure 6.1: GDP growth rate of Pakistan. Source: Trading Economics (2014).

Total natural resource rent was 3.7% of Pakistan's total GDP in 2012, which included oil and petroleum products, forestry, fisheries and natural gas. The share of mineral resources in GDP was below 1% in 2012 (World Bank, 2013). From 2006 to 2009, there is constant decline in GDP growth. It was attributed to the unstable political environment in the country. However, a constant rise was seen from 2009 till 2014. The country is under continuous trade deficit due to the import of energy minerals (see Figure 6.2). Fuel and furnace oils account for 40% of imports with machinery and equipment accounting for 18% (PBS, 2014). Pakistan's dependence on imported oil for power-generation is the main reason for the trade deficit and decreased foreign direct investment (Kuo, 2012).

In August 2014, the balance of trade recorded by Government of Pakistan (GoP) was in deficit and accounted for US$ 2015 million (State Bank of Pakistan, 2014)(see Figure 6.2).

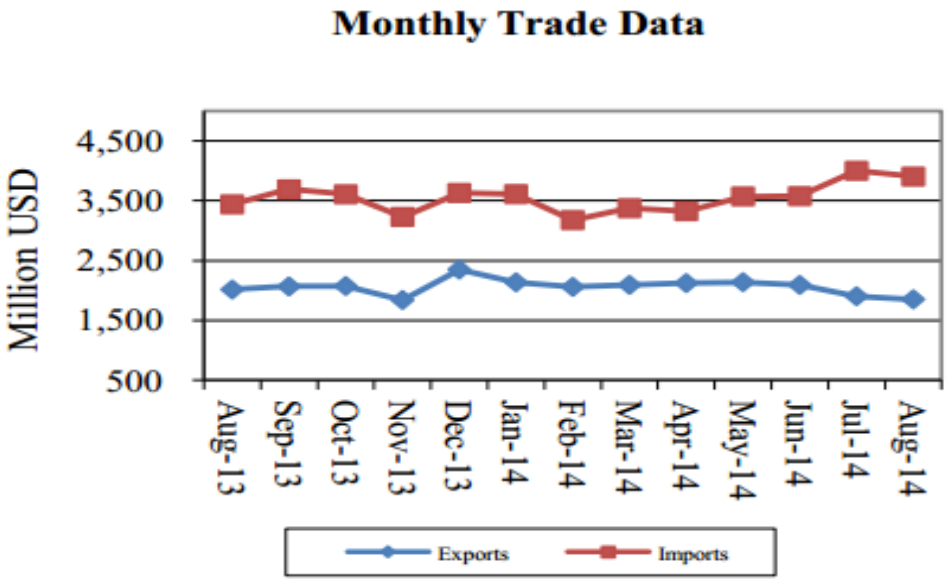



Figure 6.2: Trade deficits. Source: State Bank of Pakistan Exchange Records (2014).

## 6.2 The Role of Power Generation in GDP of Pakistan

At the time of independence in 1947, Pakistan inherited 60 Megawatts (MW) of electricity for a population of 31.5 million people. In 1959, the production rose to 119 MW. By 1964, Pakistan was producing 636 MW, which was an indication of social and economic development (GoP, 2013). Pakistan's power crises started in 1994, when the power shortage was 2000MW and only 40% of the population had the access to electricity (Aftab, 2014). Presently, 2% of annual GDP is shaved off due to power shortage in the country.

Pakistan is facing the issues of circular debt (slippages in bill payments and debt accumulation from independent power producer companies, which has resulted in decreased power generation), subsidies, increased urbanization and consumption coupled with cost inflation. The International Monetary Fund (IMF) had extended US$ 6.7 billion from its extended loan facility to clear the circular debt, tariff adjustment and for financial viability (IMF, 2013), which is otherwise an additional burden on economy.

## 6.3 Rising demand of coal from neighboring countries

### 6.3.1 Outlook of India and China as emerging markets

World demand for coal has increased due to its usage in energy generation. The demand trend has shifted from Russia (former Soviet Union) and Europe to Asia (EIA, 2014). Keeping in view the rate of urbanization and population growth of China and India, the demand will take a steeper curve for Asia. There are 200 cities in China, having individual population of 10 million each. On the other hand, Europe has only 35 cities of 10 million populations each (Solomon, 2014) for which optimum level of energy is required. World consumption of coal for the last three decades is shown in Table 6.2.

Table 6.2: Percentage of global consumption of coal in last 30 years.

| **Country / Continent** | **1980 Consumption** | **2010 Consumption** |
|---|---|---|
| Asia | 24.3 % | 63.1 % |
| North America | 18.2 % | 14.1 % |
| Europe | 34.2 % | 12.1 % |
| Russia / Soviet Union | 18.2 % | 5.5 % |
| Africa | 2.7 % | 2.7 % |
| Oceana | 1.8 % | 1.9 % |
| Central and South America | 0.5 % | 0.06 % |

Source: US Energy Information Administration (2014).

The primary energy demand for Asia (including China and India) will rise by 2.5% per year and in 2035, it will account for 42% of the world's energy demand (Ejap, 2014).

### 6.3.2 China and India demand for energy materials

China will be the largest consumer of natural gas by 2035 and continue to be the single largest coal consumer till 2035 (Ejap, 2014). Due to the larger share in demand of the world's coal, China has great influence on demand and supply forces and prices of energy minerals. India is second largest populous country and in 2035, the population of India will be 1.5 billion. The demand for coal will rise by 7% and in 2035, the demand for oil will be approximately 7million barrels per day. Coal

accounts for almost 60% of the energy growth (IEA, 2013). China and India together constitutes a significant share in world energy materials (see Table 6.3)

Table 6.3: Comparison of China and India consumption.

| | China | India |
|---|---|---|
| **Population (Million)** | 1336 | 1189 |
| **Coal ( Thousand short tons)** | 3,967,117 | 801030 |
| **Oil ( Thousand barrels / day** | 10276 | 6321 |
| **Natural gas (Billion cubic feet)** | 5152 | 2076 |
| **Renewable Electricity (Billion kilowatts hour)** | 797 | 162 |

Source: US Energy Information Administration (2014).

China and India have emerged as the center hub for almost all future economic activities. Latest plans of Chinese government are to double the GDP in less than 10 years and although China has slowed down in its economic growth, its growth still reaches 7.4% annually (Gruber, 2014).

## 6.4 Thar Coal Project

### 6.4.1 Introduction

The coal field of Thar is situated in Sind province. It is located between longitudes 69°45'E and 70°45' and longitudes 24°15'N and 25°45'N (GSP, 2014). The Geological Survey of Pakistan (GSP) discovered this huge reservoir of coal in 1992 with its research partnership with United States Geological Survey (USGS). Thar coal is spread approximately over 9100 $km^2$ with dimensions of 140 km North-South to 65 km East-West (Fassett, 1994). Thar coal has an estimated reserve of 175.5 billion tons and it is located 360 kilometers from the provincial capital of Sind, Karachi. The average temperature of Thar Coal field varies in summer from 24° to 48° Celsius and in winter from 9° to 28° Celsius. Out of 186 billion tons of coal reserves in Pakistan, 175.5 billion tons are concentrated in the Thar Desert. The location map is shown in Figure 6.3

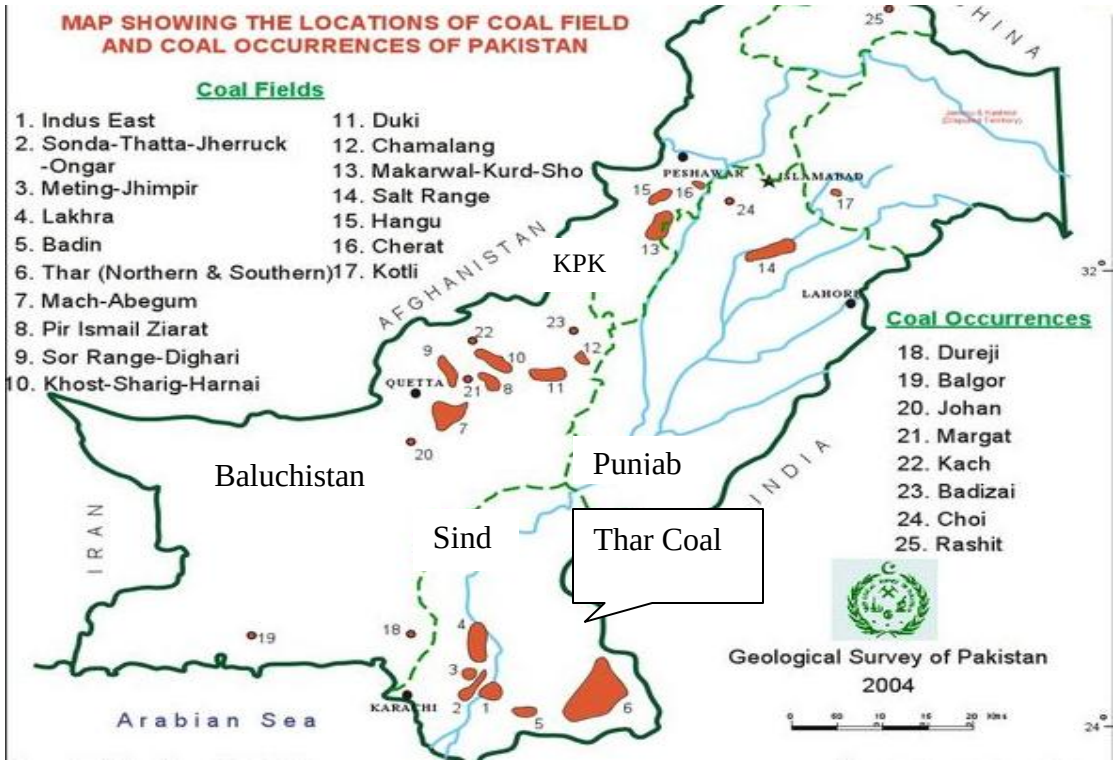



Figure 6.3: Location of coal reserves in Pakistan. Source: Sohail (2013).

### 6.4.2 Characteristics of Thar coal

Thar coal alluvial deposits contain sandstones, siltstones and clay stones in average of 11-127 meters thick seam. The second seam, Bara Formation contains mainly sandstone, shale, coal and clay stone, whereas the basement complex contains granite rocks. The thickest seam is present from 114 to 201 meters all over the reserve and called Thar seam. There are three aquifers at the depth of 50m, 120m, and 200m respectively with brackish and saline water. The PH value of underground water varies from 7.21 to 8.22 as compared with River Indus water near Naukot, which has the PH value of 8.06 (GoS, 2008). Thar coal is comparable in its chemical properties with the world's coal reserves. Table 6.4 shows the comparison of Thar coal chemical characteristics with other coal reserves around the world used for the power generation.

Table 6.4: Comparison of Thar Coal characteristics with international mines

| Deposit | Heating Value (Net)Kcal/Kg | Sulphur % | Ash | Moisture | Stripping ratio $m^3$/Ton |
|---|---|---|---|---|---|
| Thar | 2770 | 1.07 | 7.8 | 47.46 | 6.12 |
| Gujarat, India | 2600-3000 | 3.4-5.9 | 9-12 | 38-40 | 9-14 |
| Hambach, Germany | 1911-2747 | 0.2-0.4 | 2-5 | 48-52 | 6.3 |
| Maritza, East Bulgaria | 1550 | 4.5 | 19-35 | 54 | 1.7 |

Source: US Energy Information Administration (2014).

By comparison, it can be deduced that Thar coal mining should not be a challenge. The distance of the reef from the ground and crust surface is in the form of a sand dune, which makes it cheaper to mine. The stripping ratio of Thar coal can also be comparable to other coal mines in the world. Overburden found in Thar coal field should not be a challenge. The only challenge is the operations and transportation in dusty and warm environments with heavy machinery.

### 6.4.3 Potential of resource in terms of power generation and local use

Other lignite reserves are located in Lakhra, Sonda, Indus East and in other parts of central Sind. Lakhra coal field is completely developed and a 150MW plant is being operated by Water and Power Development Authority (WAPDA). The coal seam is the same as of Thar Desert (GoS, 2008). Sind province has three coal reserves, which include Thar Coal having a potential of 100,000MW and consumption of 536 million tons/year. Lakhra's potential is 1000MW with consumption of 4.6 million tons/year and Sonda having a potential of 500MW with 2.3 million tons/year. The areas are located in close proximity within the country.

Coal has an advantage to be a cheaper fossil fuel among others. It is estimated that in brick kilns, 1 ton of coal will produce equal amount of energy and an output of 1 ton of oil. It can be used as boiler fuel for the supply of steam as feedstock for manufacturing of pipes, cement, urea, smelting, paper and cloth. Coal briquettes can be used as fuel in the Northern areas of Pakistan, which will reduce the deforestation. Presently, coal is utilized for coal gasification, underground coal gasification (project

is held in abeyance), as well as industrial fuel and brick kilns. The country has experienced exponential growth in coal consumption in last decade. The coal consumption in Pakistan for the year 2002-3 is illustrated in Table 6.5.

Table 6.5: Consumption of coal in Pakistan in 2002-2003.

| Industry /Sector | Consumption (Million Tons) |
|---|---|
| Brick kiln industry | 2.61 |
| Domestic and coke making | 1.12 |
| Cement | 0.96 |
| Power generation | 0.20 |
| | 4.89 |

Source: NEPRA (2004).

In 2008, Pakistan consumed 12.174 million tons, which was 0.168% of the world's consumption (Tititudorencea Bulletin, 2012).

### 6.4.4 The Policy of power generation and Thar coal

The Power policy of 1998 failed to attract foreign investors to invest in coal for power generation (GoS, 2008). Government of Pakistan felt the need to revise the policy and create favourable situations to attract foreign direct investment. The new Power Policy has certain reforms, which were added after evaluating the 1998 power policy failures. To attract foreign investors, import duty on all machine and equipment was reduced to 0%. All companies which are involved in the project will be free from withholding tax, turnover rate tax and income tax on imports for the initial dividend of 30 years. The return on equity will be US dollar based. If there will be any variance in US dollar and Pakistani rupee exchange rate, the tariff will be indexed for the variation. Debt would be obtained in four currencies for a broader access of debt financing namely US dollars, Pound Sterling, Euros and Japanese Yen.

Thar coal field was declared as special economic zone and Thar project was given the status of project of national security. However, Thar project has not made any significance in power-generation in the last decade. The current 31% tax on solar panels shows the attitude of government towards the energy-generation through renewable resources. Thar coal has come under the number of local, provincial and national organizations, which makes the operations more complex. Chief Minister of Sind is a focal person to provide all the technical and in-situ facilities for the project. On the other hand, the Federal minister for power is the vice-chairman of the project

and mainly responsible for releasing the budget after evaluation of the deliverables (GoS, 2008).

## 6.5 Power generation policy vs. Mineral development policy: Impediments for Thar Coal Project

### 6.5.1 Risks associated with mining in Pakistan

Mining has long lead times (approximately 18-23 years) to develop and go into production phase (Solomon, 2014). Moreover, mining industry is characterized by high risk and cyclical in nature. On the other hand, investors' top priority is political stability as well as a transparent, equitable, efficient, predictable and supportive mineral policy (Desai, 2014).

Due to the absence of project deliverables in Thar coal underground gasification project, it was put on hold by federal government and stopped further release of funds (Daheem, 2014). Sind Engro coal mining company set up a 100MW coal fired plant in 2011, with open pit mining. The Provincial government stopped the supply of coal to the plant on tax and royalty issues. Thar Underground coal gasification project also has been held in abeyance due to internal conflicts in the Planning Commission of Pakistan (Daheem, 2014) . The weak taxation system applicable to the business community is another hurdle. Tax on income constitutes 97% of direct tax collection. The present regime has targeted 11% ratio of tax to GDP through a rigid tax collection system and increasing the tax base (Aftab, 2014).

Pakistan's National Mineral Policies were neither given to stakeholders for discussion and improvements, nor was it made public for comments (Sohail, 2013). The results have been lengthy, time-consuming and complex procedures for foreign investors with the involvement of different level of organizations. For example, a solicited proposal has to undergo Provincial and Federal institutes for a smooth, successful outcome (see Figure 6.5). If there are some disputes between both the parties, the investors suffer as in case of Sind Engro coal mining company. Figure 6.4 shows the procedure of approval.

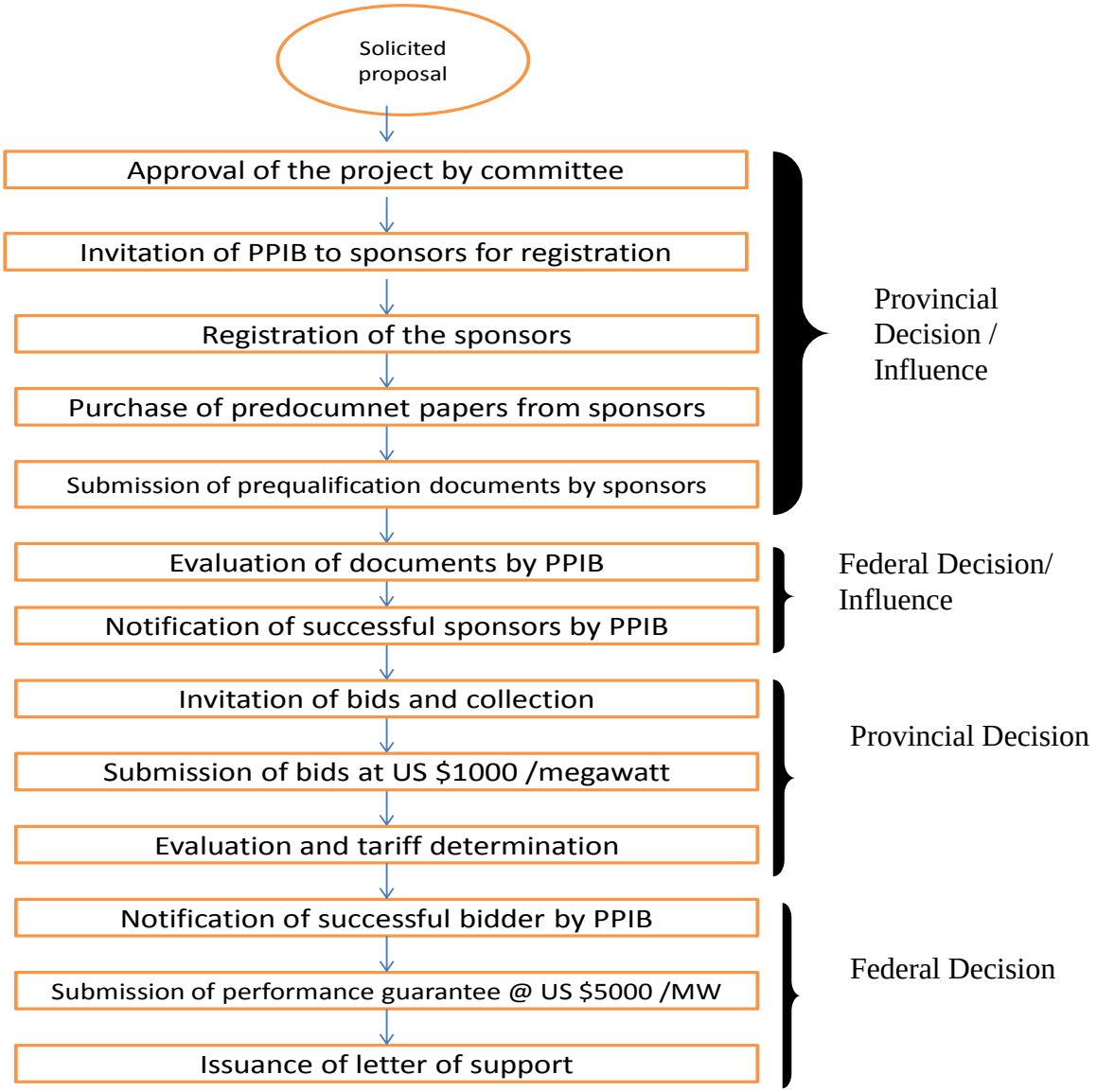



Figure 6.4: Procedure for approval of solicited proposal.

### 6.5.2 The Current situation affecting investment in Pakistan

Pakistan is facing multiple issues on local and international levels. For a sound policy-making, background documents (SWOT analysis and local economic scan) are essential (Mtegha, 2007). Pakistan has had three national mineral policies but none of them has made significant impact. Economic planners involved in drafting the National Mineral Policy of 1995 had only three of meetings in 17 years to address the hiccups in smooth functioning, which was a major cause of its failure (Dawn, 2012). The NMP 2012 replaced the NMP 1995. Unfortunately, no background study for

addressing the failures of the past was carried out. The author of this report is working on one aspect of the National Mineral Policy of Pakistan.

Unlike South Africa, whose minerals are under state ownership and the right of all South Africans, Pakistan's mineral assets are under the jurisdiction of provincial government. On the other hand, power-generation and beneficiation of minerals come under the jurisdiction of the Federal government (GoS, 2008). Any foreign investor who wants to invest in mining would require permission for power generation as well. Due to the complex structures of projects, procedural delays coupled with uncertainty in political situations, these make it difficult to initiate a project. As an example, there are 11 federal agencies and 8 provincial agencies which are directly linked with Thar project. Federal and provincial agencies are shown in figure 6.5. The notable disputes which arose in Thar coal project were from the allocation of the resources, monitoring, and power to take financial decisions, allocation of resources and allocation of human resources.

As stated previously, the political situation is very fragile in Pakistan. After the smooth transformation of powers to a new government, it was hoped that the new government would take necessary steps to attract foreign investment. Unfortunately, the economic indicators have shown poor performance of the present government. Government has not addressed the core issues in policy formulation in mineral and power sector and the causes of failure of previous policies.

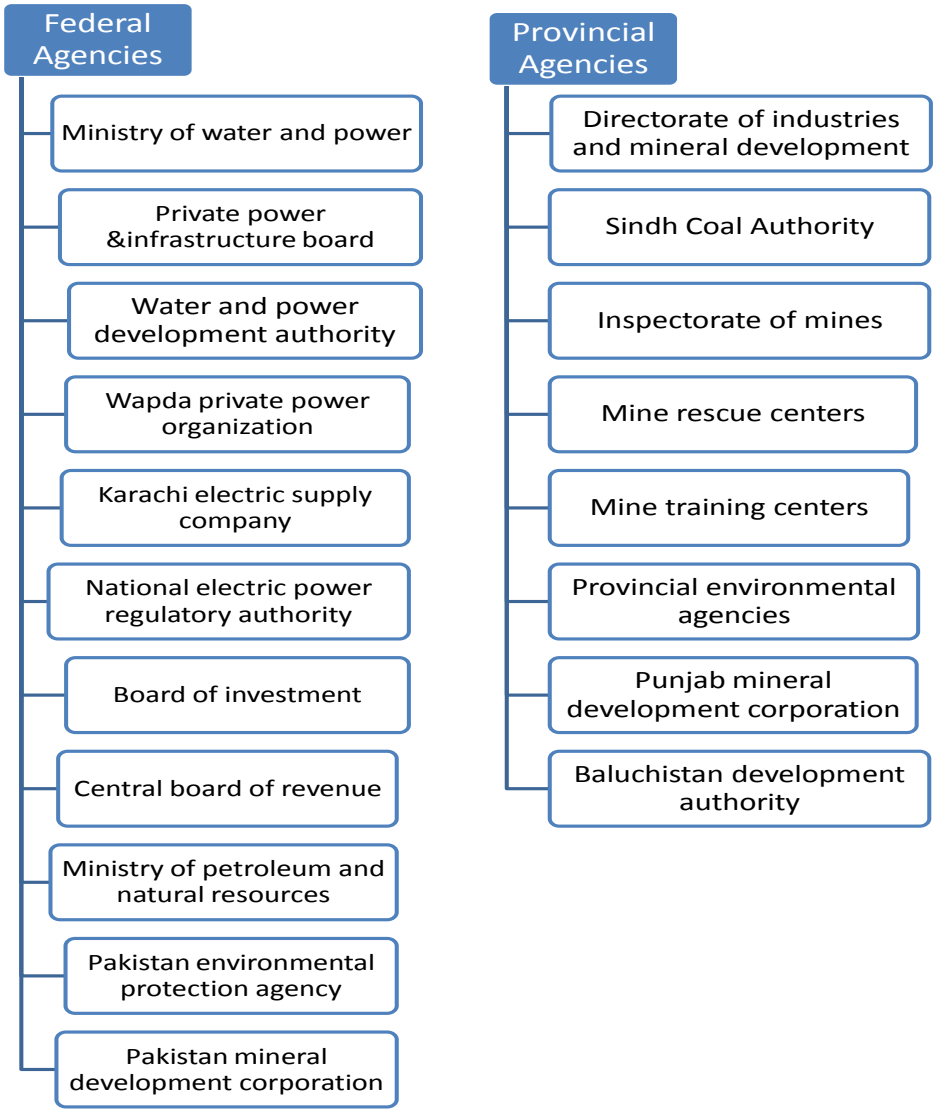



Figure 6.5: Federal and provincial organizations involved in Thar coal project. Source: GoS (2008).

### 6.5.3 Options available for Pakistan

Pakistan will be facing acute shortage in power in years to come. In 2020, the project demand for electricity is expected to reach to 54,359MW with a gap of 36,462MW (GoP, 2014). The shortfall of electricity will enter into crises zone. Pakistan has two options for Thar coal. Firstly, Pakistan needs long term measures to be taken to address the beneficiation strategy of Thar coal project. Investing in skill development, education, anti-corruption measures, stable, political and financial environment and

above all, sound policy for minerals and power, will pay handsome dividends. Secondly, keeping in view the trends in coal consumption and geostrategic location of Pakistan, there is a dire need to market the coal in local markets in Asia. China and India are focusing their power generation on coal. The opportunity can be exploited for revenue-generation till the time a sound policy is brought into the picture. Pakistan has a road and railway infrastructure from Sind to India, which has been abandoned. It will facilitate the trade ties between two countries. Pakistan can bargain on electricity provision for a specific period from India. During this time, Pakistan can plan to beneficiate Thar coal. It will help to bridge the gap in energy crises and address other core issues with the provision of revenue-generation.

Virtuous cycles are recurring cycles of events which strengthens the outcomes for more benefits in continuous time frame. Keeping in view the options available for Pakistan, the proposed Virtuous Cycle for Thar coal is shown in Figure 6.6.

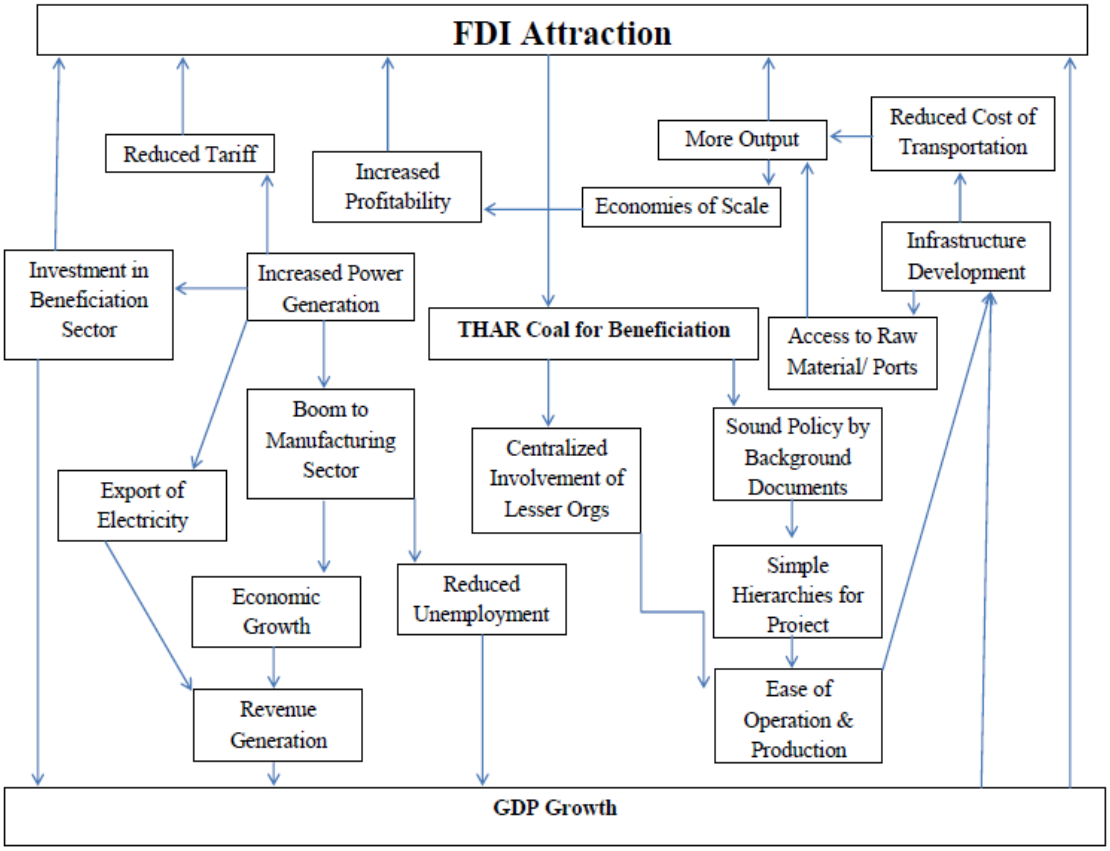



Figure 6.6: Proposed virtuous cycle for Thar Coal.

## 6.6 Conclusion

Pakistan is endowed with a variety of mineral assets which can be exploited for the benefit of the country. Thar coal, after its discovery in 1992, was not given any deliberate attention for exploration, mining and beneficiation. Due to policy failures, unstable political situation and international challenges like terrorism, Pakistan's mining sector had not made any impact despite being ranked as the world's 2nd largest resource.

The current energy crises in Pakistan call for deeper planning for future. In chapter Six, it was revealed that Pakistan is still having acute shortage of electricity, which is primarily generated by water and by IPPs. Only 40% of its population has access to electricity and 2% of annual GDP is shaved off due to the shortage of electricity. Thar Coal can play a pivotal role in the power sector of Pakistan, but weak policy-making,

opaque legislations and disparity in Federal and Provincial laws have put this project to a halt.

Additionally, here is a disparity between the power-generation policy and mineral resource policy. There is no clear demarcation of the jurisdiction of Federal and Provincial mining institutes due to lack of legislation and implementation of mineral laws. As a result, a solicited project can be held in abeyance right in the middle of the time when the project is about to deliver. Thar coal UGC project is one example.

The chapter highlighted the fact that Asia has an emerging demand of coal. The consumption of Asian countries has increased from 24.3% to 63.1% (see Table 6.2). Pakistan is located at vital geostrategic location. Pakistan's borders are shared with China, India, Russia and Iran who are regional and emerging global powers. If there was a prolonged time gap with the power-generation from coal, Pakistan could have benefited through the effective marketing of coal to India, China and Iran. Also, with the development of basic infrastructure, Pakistan would be able to benefit from Thar Coal. The quality of coal from Thar field is comparable to any other quality coal in the world. Pakistan can have joint venture projects with India and China for the beneficiation of Thar coal. It will build strong ties with India which is a regional power. With this, Pakistan has the potential to also rise as the regional power. The only need is to prioritize the issues and concerns and address them deliberately.

In Chapter seven, over all conclusion will be presented with the possible options available for Pakistan's mineral industry.

# CHAPTER SEVEN

## 7. Conclusion and Recommendation

### 7.1 Introduction

It has been experienced that minerals are one of the important ingredients for economic growth (Oshokoya, 2013). Due to the magnitude of mining operations, the mining industry provides huge amount of employment, share in foreign cash flows, development of infrastructure and urbanization. Pakistan is endowed with a vast variety and quantity of minerals. Unfortunately, the industry has not taken off yet due to some inherent hurdles. This report took a general look at these hurdles, with primary focus on identifying the stakeholders and the results of the lack of their participation in mineral development process as a whole. This report covered the areas of mineral policy of Pakistan and the value of stakeholders in the policy formulation process.

Pakistan has formulated two mineral policies since 1992, but none of these policies could have been able to address the issues faced by its mineral industry. Unluckily, previous mineral policy-making in Pakistan did not follow due policy formulation process. After the announcement of the second mineral policy in 2012, the geo-political environment has been changing rapidly. The War on Terror has gained the momentum and there is a requirement to readjust the policies according to the current geo-political situation.

In the next sections, the summary of findings and conclusion are streamlined to answer the question of Pakistan mineral sector's bad performance. This report will answer the question of why mineral sector has not contributed to the economic growth of Pakistan.

### 7.2 Conclusion

With Pakistan having vast mineral reserves, its mineral industry has not made any significant impact. Unfortunately, this has been mainly due to instability and gaps in the mineral policy formulation process. The three mineral policies that were developed since Pakistan's independence have not been able to address the core issues of the sector. The main aim of this report was to carefully analyze the culture, atmosphere, demographics and business atmosphere with the help of SWOT analysis

as well as identify the stakeholders and their role along the mining value chain, in mineral policy formulation of Pakistan.

After a careful analysis of the findings, it is concluded that a smooth and standard process of policy formulation was not adopted. For a policy formulation, stakeholder's consultation is vital. Unfortunately, in the formulation of any of the three Mineral Policies, Pakistan's business atmosphere was not analyzed and many of the stakeholders were not identified even and never taken on board. As a result, both policies were made in "*decide - announce - defend"* atmosphere. For the purpose of contributing to the on-going adjustment processes being carried out, after the announcement of NMP-2, this report endeavored to identify the gaps in policy formulation and tried to pave way for a smooth mineral development.

A smooth mineral development will occur when stakeholders' dependency on each other along the mining value chain is acknowledged and incorporated in policy formulation.

### 7.3 Recommendations

In this report, Pakistan's mineral policies were analyzed keeping in view the stakeholders' perspective. It was indicated that the engagement of stakeholders at every step of policy-making is imperative for formulating a sound policy. In light of this the following are recommended:

1. With the identification of stakeholders and their roles in the mining value chain, a business model for Pakistan's mineral industry should be made, keeping in view the available set of choices and positive boosters;
2. A review of the NMP-2 by following the standard formulation process should be carried out;
3. Administration and management of mineral resources should be kept separated from the oil and gas ministry in Pakistan. It can work as autonomous body which can address the mandate of huge mineral reserves in the country;
4. The areas which could not be developed in past and which require immediate attention to avoid any further social unrest e.g. KPK and Baluchistan, should be addressed immediately; and
5. All areas of NMP-1 and NMP-2 which were left unaddressed should be given prioritized attention. It is suggested that the mineral legislation should autonomously and clearly go under either Provincial or Federal jurisdiction, in order to address the current anomalies. The argument for this is that it would be

better if the legislation and policy-making are done under one flag and the business model for the industry disseminated from one platform. The strategy and tactics for the industry can also be outlined from one platform.

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Annexure A

ISLAMIC REPUBLIC O F PAKISTAN

# NATIONAL MINERAL POLICY – 2

2012








June 2012

Government of Pakistan

Ministry of Petroleum and Natural Resources, Islamabad, Pakistan

## Objectives of the Policy

The Federal and Provincial Governments of Pakistan are conscious of their responsibility for creating a favourable environment for an effective and vibrant mineral sector in Pakistan. The Federal and Provincial Governments are also cognizant of the need to keep pace with the changing international investment climate, and the important objectives which need to be satisfied in order to secure foreign and local private risk capital investment into the mineral sector.

The broad goals are to enhance the contribution of the mineral sector to the GDP by efficient and sustainable development of mineral resources through private sector investment for the benefit of the people of Pakistan. In order to achieve this goal, the National Mineral Policy – 2 aims to achieve the following:

i) Enhancement and sustenance of revenue flow to the Provincial and Federal Governments.

ii) Creation of an investment-friendly climate to enhance international competitiveness;

iii) Optimisation of exploration, development and exploitation of minerals;

iv) Mitigation of adverse environmental effects of mineral development;

v) Generation of mass scale employment and socio-economic uplift through enhanced skills, sustainable mineral development, technology transfer and regional infrastructure development;

vi) Administrative restructuring of relevant federal and provincial mineral sectors;

vii) Generation of geological data, development of a national cadastre and provision of online accessibility to such data; and

viii) Ensuring safe mining operations and safety and security of investors.

## 2. Constitutional Position on Minerals

**2.1** Minerals other than oil, gas and nuclear minerals and those occurring in special areas (FATA, Giligit-Biltistan, AJK and ICT) are a Provincial subject under the Constitution. Provincial Governments/federating units are responsible for regulation, detailed exploration, mineral development and safety concerns in these operations, whereas geological/geophysical survey and mapping, mineral identification, regional exploration, national and international coordination and formulation of national polices and plans are federal responsibilities. In line with this Constitutional framework, the Federal and Provincial Governments jointly endorse

this Policy, which provides for appropriate institutional arrangements, a modern regulatory framework, internationally competitive fiscal and regulatory regimes and a programme to expand Pakistan's geological database.

The respective Government may, by notification in the official Gazette, make rules for the grant of mineral concessions/titles in respect of any mineral including those underlying the ocean within the territorial waters or the continental shelf of Pakistan.

**2.2** The provisions of this Policy clearly provide that the continued focus of all activities and decision-making will be at the Provincial level while the Federation would provide requisite support and advice to the Provinces to take up the challenges of achieving sustainable benefits from the development of non-renewable mineral resources.

**2.3** All federating units of the Islamic Republic of Pakistan commit to the minerals ownership structure and legislation in Pakistan as defined in the Constitution and this Policy.

## 3. Consultative and Regulatory Framework

**3.1** The mining sector has many peculiarities of its own compared to other sectors (in particular, complex nature of the sector, long gestation periods, high risk capital investment in the exploration phase, large scale investment), thus requiring established consultative mechanisms for achieving optimal benefits of mineral resources. The Federal Government in close cooperation with the Provincial Governments in particular and all other stakeholders in general stands committed to achieve substantial input to the mineral sector by providing an investment-friendly regulatory regime. The Government of the Islamic Republic of Pakistan makes it a policy objective to further and strengthen the capacity of the policy implementers to plan and implement the National Mineral Policy.

### 3.2 Mineral Investment Facilitation Authority

Mineral Investment Facilitation Authorities (MIFAs) are to be established at both Federal and Provincial level. At the Provincial level, these will be mandatory bodies as provided for in the Provincial Mining Concession Rules.

### 3.2.1 Provincial Mineral Investment Facilitation Authority – MIFA (P)

The membership of the MIFA (P) will be as follows:

| | |
|---|---|
| Minister for Mines & Minerals/In case of FATA, Governor Khyber Pakhtunkhwa | Chairperson |
| Additional Chief Secretary (Dev.) | Vice-Chairperson |
| Secretary, Mines and Minerals Department | Member & Secretary |
| Secretary, Finance Department | Member |
| Director General, Provincial Directorate General of Mines and Minerals | Member |
| Director General of the Provincial Environment Protection Agency | Member |
| Chairperson of provincial Mineral Development Corporation/Authority. | Member |
| Representative of Pakistan Mine Owners' Association. | Member |
| Representative of the Federal Government nominated by the Ministry of Petroleum and Natural Resources | Member |
| Representative from Academia(relevant Universities) | Member |

### 3.2.2 Federal Mineral Investment Facilitation Authority – MIFA (F)

MIFA (F) will be reconstituted at the federal level by the Ministry of Petroleum and Natural Resources with the following members:

| | |
|---|---|
| Secretary, Ministry of Petroleum and Natural Resources | Chairperson |
| Additional Secretary, Ministry of Petroleum & Natural Resources | Vice- Chairperson |
| Additional Secretary, Planning & Development Division | Member |
| Additional Secretary, Finance Division | Member |
| Chief Secretary Gilgit-Baltistan Government | Member |
| Chief Secretary, AJ&K | Member |
| Director General PEPA | Member |
| Chief Commissioner, I.C.T. | Member |
| Chairperson of federal Mineral Development Corporation/Authority. | Member |
| Representative of Pakistan Mine Owners' Association. | Member |
| Director General (Minerals), Ministry of Petroleum & Natural Resources. | Member/Secretary |

The composition or functions of the MIFAs may be varied to the extent considered necessary by its members. MIFAs may co-opt or request the presence of a representative of any Government department or stakeholders for a particular meeting.

**3.2.3** Each MIFA will execute the following functions:

i. Monitor and direct mineral related activities and programmes of the respective Government/ federating unit and public sector on a regular basis;

ii. Act as a facilitator to all stakeholders and provide a one-window permitting and approval operation to mining companies proposing large scale projects;

iii. Review and ensure compliance by the respective Government/federating unit with mineral/project agreements;

iv. Carry out periodic review of implementation of the regulatory and fiscal regimes and functioning of the mineral administration set-up in the federating units/federation.

v. Introduce measures for promoting the manufacture and use of local goods and services, thus creating opportunities for industrial development and appropriate education and training of locals in modern mining skills;

vi. Evaluate and if appropriate, promote the establishment of secondary and tertiary mineral processing facilities within the country, subject to environmental, social and economic viability;

vii. Arrange and approve mineral portfolios for attracting private investment;

viii. Carry out any other function assigned by the respective Government/federating unit; and

**3.2.4** MIFAs may also request, if considered necessary, participation or assistance of the Federal Government in negotiation of mineral agreements or project development agreements by the Provincial Government with foreign mining companies.

**3.3 Federal/Provincial Mineral Sector Structure**

**3.3.3.1** The Federal Government will continue to strengthen the federal mineral sector through administrative restructuring, where needed, of federally controlled areas/territories (FATA, ICT and International Off Shore Water Territories) on the analogy of the Policy Wing of the Ministry of Petroleum and Natural Resources. Necessary amendments will be made in rules/laws to place the mineral sector of FATA, ICT and International Off Shore Water Territories under regulatory control of Ministry.

**3.3.3.2** Each Provincial Government/federating unit will re-organize a Department of Mines and Minerals under an independent Secretary with the following functions:

i. Planning and regulation of Mineral Resources Development;

ii. Consideration of applications and grant of licenses and leases;

iii. Regulating and monitoring of mining operations and activities in the mineral sector, including collection of royalties;

iv. Negotiating mineral agreements and consulting the Federal Government where considered necessary by MIFAs;

v. Facilitating access to private or public lands and reserve forests and resolution of issues with other public department functionaries for the purpose of exploration or development of mineral resources;

vi. Maintenance of updated digitized Cadastre showing positions of all exploration licenses and leases granted, renewals, assignments and surrenders of mineral

titles, relinquishment of acreage and making this information public through regular publication of complete details in the official gazette;

vii. Ensuring safety, health and welfare of miners;

viii. Re-structuring aimed at bringing under one umbrella the functions of Directorate General of Mines & Minerals, Inspectorate of Mines, Mines Labour Welfare Organisation, all labour laws including coordination with ILO, environmental issues, Electricity Act, Explosives Act and Boilers Act, constituting various boards and committees under statutes on tripartite basis including MIFA;

ix. Undertaking applied research;

x. Establishing warehouses of machinery and equipment and also adopting measures for seeking franchise for indigenous manufacture of machinery;

xii. Undertaking, skills development and gainful employment of Geo-scientists in the country;

xiii. Ensuring conservation of mineral resources;

xiv. Mitigating the adverse impact of mining on the environment;

xv. Ensuring sustainable development;

xvi. Development of infrastructure;

xvii. Facilitating the small-scale mine operators in the development of their mines on scientific practices;

xviii. Facilitating the mine operators in the transfer of technology;

xix. Ensuring capacity building/HRD of the Geo-scientists engaged in Government departments and that of stakeholders; and

xx. Coordination among all related departments within Federal government, provincial governments, federating units and stakeholders.

### 3.3.3 Licensing Directorate, Ministry of Petroleum & Natural Resources.

**3.3.3.1** A Licensing Directorate shall be established within the Ministry of Petroleum and Natural Resources. The Licensing Directorate will be properly equipped with modern surveying instruments, GPS, computers, total station digital set ups, a technical library with up-to-date reports, sets of topographical, geological maps, aerial photographs and satellite imageries, as well as related software programmes. The topo-sheets of all potential regions shall be made available for a fee at the one window (one-stop) facility.

**3.3.3.2** Capacity of the Federal and Provincial Directorates will be enhanced by:

a) Recruiting qualified and experienced staff in various disciplines of mineral exploration, development, environmental protection, mineral economics and law;

b) Imparting practical on-the-job training in large mines/mineral processing plants;

c) Sending staff abroad for short duration courses in mineral development, management of regulatory regime, general management functions, mineral economics, including minerals sales contracts, protection of environment and socio-economic development of mining areas and regulation of mineral agreements.

### 3.3.4 Exploration and Coordination Directorate/Exploration Promotion Division

An Exploration & Coordination Directorate will be established at Federal level, while Exploration Promotion Divisions will be established in the respective Provincial Directorates of Mines and Minerals. These entities will:

1. Provide competent interface with teams of international investors;
2. Generate their own geo-data, and carry out geological mapping of priority areas, identify mineral prospects with or without assistance from Geological Survey of Pakistan (GSP) and donor agencies for exploration promotion;
3. Compile, evaluate and disseminate geo-data and make available geological and geographical maps and serve as sales point for GSP publications, maps and reports;
4. Provide advisory services to industry;
5. Feed and receive all critical geo-data to or from the Geo-data Centre of Pakistan; and
6. Carry out research and development, for which an agreed portion of royalty would be dedicated.

An agreed percentage of royalty would be earmarked and placed at the disposal of the Mineral Investment and Facilitation Authority (MIFA), to facilitate the operation of the Exploration Promotion Division/Coordination Directorate.

## 4. Mineral Investment Facilitation Board (MIFB)

**4.1** The Federal Government recognizes its role in the development of mineral resources, not only in the context of fiscal policies but also in international contacts with donor agencies and negotiation of mineral agreements. A Mineral Investment Facilitation Board (MIFB) will therefore be established as a consultative forum,

under the Chairpersonship of the Federal Minister for Petroleum and Natural Resources. The membership of MIFB will be as follows:

| | |
|---|---|
| Federal Minister for Petroleum and Natural Resources | Chairperson |
| Chairman BOI | Vice- Chairperson |
| Secretary, Mines & Minerals Department, Government of Khyber Pakhtunkhwa | Member |
| Secretary, Mines & Minerals Department, Government of the Punjab. | Member |
| Secretary, Mines & Minerals Department, Government of Sindh | Member |
| Secretary, Mines & Minerals Department, Government of Balochistan | Member |
| Secretary, Mines & Minerals Department, Government of AJ&K | Member |
| Secretary, Mines & Minerals Department, Government of Gilgit-Baltistan | Member |
| Chief Commissioner, I.C.T. | Member |
| Addl. Chief Secretary FATA | Member |
| Representative of Pakistan Mine Owners Association. | Member |
| Director General (Minerals), Ministry of Petroleum & Natural Resources. | Member /Secretary |

The Federal Minister for Petroleum and Natural Resources will chair the target-setting meetings while all other meetings may be chaired by the Vice-Chairperson of MIFB. The Board while performing the chartered functions may form committee(s) to deal with specific issues. The Mineral Wing, Ministry of Petroleum and Natural Resources will act as Secretariat of the Board.

**4.3** MIFB will advise the relevant authorities on appropriate actions to:

i. Encourage the flow of investments into the mineral sector, review proposals for its enhancement and make recommendations to the concerned agencies;

ii. Assist the Provincial Governments in selection/preparation of suitable mineral sector portfolios for introduction by the provinces to donor agencies and investors;

iii. Advise on fiscal and taxation policies and federal tariff for the mineral sector to enhance its international competitiveness;

iv. Establish annual priority of geosciences mapping and surveys based on requirements of industry and priorities advised by the MIFAs; and

v. Assist the Provinces in the development of skilled manpower and infrastructure as per their priorities by arranging financial assistance including foreign/donor assistance.

vi. Resolution of disputes arising between investors and federating units where enforcement of bilateral/multilateral commitments of GOP is involved. The decision of MIFB will be binding on the federating units.

The constitution and function of MIFB shall be provided a legal cover under the relevant statutes.

**4.4** The Board may co-opt any member for any professional or expert input required in a particular meeting or for a period as determined by the Board.

**4.5** The MIFB scope can be amended/expanded as and when considered necessary and agreed to by this inter-Provincial consultative forum.

## 5. Public Sector Mineral Corporations

The federal government/federating units will follow the decisions of the Privatization Commission on privatization of public sector mineral corporations/companies.

## 6. Geological Survey of Pakistan (GSP)

**6.1** Availability of geological, geophysical and geochemical maps and reliable geodata are a prerequisite to large-scale mineral exploration. Geological Survey of Pakistan (GSP) is charged with this responsibility and has also competent manpower available to undertake the same. GSP will be strengthened as the central organization for geological, geophysical and geochemical mapping, geodata generation and research.

**6.2** GSP will concentrate on the following functions:

i. Expediting publication of geological, geophysical and geochemical data and maps already available. GSP will not be required to obtain clearance from other agencies such as Survey of Pakistan or the Printing Corporation of Pakistan;

ii. Producing 1:250,000 and 1:50,000 geological maps supported by reports, for the whole country commencing with priority areas as identified by the provinces/federating units;

iii. Operating an open-file system so that unpublished raw data is also made available to the investors on fee-paying basis;

iv. Undertaking fast track integrated geological, geophysical, geochemical, and tectonic surveys, generating and disseminating basic data on potentially prospective areas as per priorities determined by MIFAs;

v. Executing mutually agreed collaborative projects with private sector and Provincial Governments if approved by MIFA, on cost-reimbursable or sharing basis; and

vi. Helping the provinces/federating units in generation of geological data.

The Ministry of Petroleum and Natural Resources will develop a mechanism for the monitoring and technical auditing of the targets assigned to GSP.

## 7. Geo-Data Bank/Centre of Pakistan (GDCP)

**7.1** A Geo-data Centre of Pakistan (GDCP) will be established in the Mineral Wing of Ministry of Petroleum &Natural Resources with the support of donors, Federal and Provincial Governments.

**7.2** The GDCP will perform the following functions:

i. Collecting, storing, updating, managing and disseminating geo-data in a standardized system to the Provinces and the industry;

ii. Creating a centralized digital map production and distribution facility;

iii. Arranging on-the-job training in geo-data management and data automation.

iv. Selling maps and publications; and

v. Establishing close links with Provincial DMMs, DGMM, Inspectorate of Mines, Pakistan Water and Power Development Authority (WAPDA), the National Oil and Gas Company (OGDCL), Directorate General of Petroleum Concessions (DGPC), Directorates General of Oil and Gas, Oil and Gas Regulatory Authority and other geological exploration companies for sharing information on various kinds of geological/geophysical surveys, drilling logs with interpretation thereof as a mandatory requirement to this Centre.

## 8. Regulatory Regime

### 8.1. Objectives

The 2002 Provincial Mineral Concession Rules, which flowed out of the 1995 National Mineral Policy, were a positive step towards modernizing the existing regulatory regime. This Policy extends the Government's drive to ensure the modernization of the mining sector regulatory instruments. This will be done, in addition to other measures, through the following:

- Addressing the concerns of mining companies as well as aspirations of the Federal and Provincial Governments/federating units and to reflect the Provincial Mineral Concession Rules in the mineral agreements entered into between mining companies and the Provincial Governments;
- Providing for mineral titles to be granted or renewed for sufficient periods to allow for the full commercial exploration, development and exploitation of any mineral deposit by the mineral title holders;
- Eliminating discretionary powers, provide time frames and ensuring transparency of decisions.
- Updating the mining laws to deal with international mining practices in Pakistan such as open pit mining and working practices.

### 8.2. Mineral Titles

The Mining Concession Rules will provide for four types of mineral titles, namely:

- Reconnaissance License (RL);
- Exploration License (EL);
- Mineral Deposit Retention License (MDRL); and
- Mining Lease (ML).

The Federal and Provincial Governments shall jointly review the Rules relating to the application, grant, duration, renewal, rights and obligations of the mineral title holders in the light of the guidelines set out in part 8.1 above.

Notwithstanding anything contained herein, the Federal Government with the approval of Provincial Government may undertake prospecting or mining operation in any area not already held under a mining concession subject to payment of prescribed fees, rental and royalty. Subject to fulfillment of other determining criteria, the principle of first-come-first-served would be generally followed for grant of concessions for small-scale mining and for large-scale mining, the respective authority shall prescribe merit based criteria.

### 8.3. Reconnaissance License (RL)

To enable the mining companies to reconnoiter large areas in a short span of time using modern techniques of satellite imagery, aerial photographs, aeromagnetic and regional geochemical surveys, a Reconnaissance License will be granted over an area of 100 to 10,000 sq. km. in respect of a mineral or a group of minerals. Unless stipulated otherwise, the license will be non-exclusive for a period of 12 months and

will not be renewable. However, the licensee will have the right to an exploration license over 10% of the area held under a Reconnaissance License provided that the criteria for the grant of such a license and other requirements of the law are met.

The Licensing Authority will take a decision on the application for a Reconnaissance License within 120 days from the date of filing of complete application. The application fee for a Reconnaissance License will be as determined in the relevant Mining Concession Rules. The licensee will be obligated to carry out an approved work programme and comply with other conditions of the Reconnaissance License. In case applications are more than one, each licensee will have the right of exploration license of an area not exceeding 10%. In case of overlap of the applied area, the decision of the Licensing Authority will be based on an open bid.

In the case of sole application for reconnaissance area and after the completion of 12 months, no application shall be entertained for exploration licenses unless the appropriate fee is paid. In case of overlapping on the chosen area between various reconnaissance license holders, the area will be granted by bidding.

The licensee will have the right to an exploration license ordinarily over 10% of the area held under a Reconnaissance License provided that the criteria for the grant of such a license and other requirements of the law are met.

The limit of the area as a matter of right can be increased beyond 10% for an Exploration License provided that; the licensing authority is satisfied on the basis of performance as reconnaissance license holder; and the extent of the programme and its financial outlay is justified.

### 8.4. Exploration License (EL)

**8.4.1** An Exploration License will be granted over an area not exceeding 1,000 sq km. for a period not exceeding three years where the applicant meets the specified criteria. The application must provide adequate information about the applicant, description and a sketch map of the area, work Programme and expenditure to be undertaken and technical and financial resources available to the applicant.

**8.4.2** Subject to the satisfactory completion of a work Programme and compliance with other conditions of the Exploration License, it will be renewed for a period not exceeding three years over 50% of the area of the original Exploration License. Where it can be demonstrated that a further extension is necessary for the completion of full feasibility study prior to applying for a mining lease, the EL will be renewed over 50% of the area as a matter of right of the licensee for another period not exceeding 3 years. The applicant will be obliged to submit, with the application, a work programme and give valid reasons for such a renewal. The application for an

EL or its renewal shall be granted/refused within 120 days from the date of filing of complete application.

**8.4.3** Application fees for the Exploration License and renewals will be as prescribed in the mining concession rules. In addition, rent for the land over which the license is granted will have to be paid. The rent will increase progressively each year.

**8.4.4** Where more than one application are made in respect of the same area, the Licensing Authority shall make a decision on the grant of an EL to one of the applicants on the basis of the best minimum work Programme submitted and other financial terms offered and demonstrable technical and financial competence to execute the work Programme and meet the other obligations of the EL, regardless of the order in which the applications were received.

**8.4.5** The Exploration License shall not, during the first two years of its term, be assigned or transferred by the Licensee to any party, other than to an affiliate and not more than 50% of the area within tenure of license within the period between the end of the second and end of the fifth year. Assignments to an affiliate will be subject to the prior approval of the Licensing Authority.

**8.4.6** The Licensee shall have the right, after a period of five years, to assign or transfer all or part of its interest in the Exploration License to any third party subject to the prior written consent of the Licensing Authority. Such consent shall not be withheld except with good reasons. For example, where the Licensing Authority is reasonably satisfied that the proposed assignee does not meet the criteria for the grant of an Exploration License, the proposed assignee is unwilling to provide an unconditional undertaking to assume all the obligations of the assignor, or to comply with any reasonable condition of the assignment; or the assignment of transfer is reasonably considered by the Licensing Authority to be against the national interest.

### 8.5. Mineral Deposit Retention License (MDRL)

**8.5.1** On completion of a full feasibility study, if the holder of an Exploration License can demonstrate that the deposit, though potentially viable, cannot be commercially developed, due to depressed metal/mineral prices utilizing proven technology or with financing on commercial terms which are reflective of current market conditions for other mining projects, the license holder may, within 180 days before the expiry of the Exploration License, apply for a Mineral Deposit Retention License (MDRL). The application must be accompanied with full justification and data as well as the prescribed fee. The applicant for an MDRL will have to demonstrate that the exploration operation had progressed as far as practicable and that the applicant is able and willing to comply with the conditions of the MDRL and

has complied with the terms and conditions of the Exploration License.

**8.5.2** The application fees for a Mineral Deposit Retention License or its renewal will be as prescribed in the mining concession rules. The licensee shall, in respect of the Mineral Deposit Retention License area, pay in advance for year, the rent applicable for the corresponding period of the Exploration License.

**8.5.3** The application for an MDRL will be considered within 180 days and may be granted for a period not exceeding two years subject to specified conditions. It may be renewed for a period not exceeding one year subject to payment of a renewal fee and land rent. However, the licensee must justify annually to the Licensing Authority the basis for continuation of renewal of the MDRL. The data generated by the licensee will be placed on an open file and the feasibility study will be placed on a confidential file at the office of the relevant Licensing Authority and will be open to bona-fide interested third parties for inspection.

**8.5.4** In the event of another company applying for a mining lease over a deposit covered by the MDRL, the licensee will have the right of first refusal to obtain a mining lease. If the licensee is unable to match the terms offered by the third party, the MDRL shall stand terminated.

**8.5.5** The decisions on the process of granting retention licenses will be made public to attract competitors so as to encourage existing lessees to be more efficient with their extension applications, and release the areas frozen/unnecessarily held over to other prospective investors.

**8.6. Mining Lease (ML)**

**8.6.1** The holder of an Exploration License or an MDRL may apply for a mining lease over an area subject to a maximum of 100 sq km. within his Exploration License or MDRL in respect of the mineral(s) covered. The application shall be accompanied by detailed information including technical and financial resources available for development of the mine, work programme for development and operation of the mine, production schedule, financing plan, environmental protection plans, proposals for procurement and use of local goods and services, training of nationals and the prescribed application fee. The application will be considered, in accordance with specified criteria, within 120 days after receipt of the application or receipt of any additional information requested. The license will remain valid while the application is under consideration.

**8.6.2** The Licensing Authority shall take conversion from Exploration License/MDRL to mining lease as a matter of right of the applicant unless the Licensing Authority has reasons to refuse this conversion. The Licensing Authority

will not refuse an application by a licensee for a mining lease unless it has notified the applicant of the proposal to refuse the mining lease and has given the applicant a reasonable opportunity to modify the proposals or mining plans or make representation or otherwise remove the grounds for refusal.

**8.6.3** The application fee for a mining lease or its renewal, as well as the land rent, will be paid in advance as prescribed in the mining concession rules.

**8.6.4** The mining lease will be granted for the lesser of a period of 30 years or the estimated life of the mine. A mining lease may be renewed for a period not exceeding 10 years or the life of the mine whichever is lesser in the light of the circumstances prevailing at that time.

**8.6.5** Where an application for a mining lease is made by an applicant not holding an Exploration License or Mineral Deposit Retention License, the decision will be made within 180 days, unless extended further up to 180 days by the Government. The lessee will be obligated to carry out mining operations in accordance with good international mining industry practice, provide acceptable working conditions and take measures to protect health, safety and welfare of employees and the environment. The lessee will be required to commence mining operations within six months of the grant in accordance with the approved development plan.

**8.6.6** A lessee shall have the right to assign a mining lease with prior consent of the Licensing Authority. Such consent will not be unreasonably withheld or delayed, if the proposed assignee meets certain specified criteria and conditions similar to those applicable for assignment of Exploration Licenses.

**8.6.7** A lessee shall have the right to market and export minerals or minerals products subject to satisfaction of the internal requirements of Pakistan. The price to be paid for any minerals or mineral products purchased by the Government shall be the fair market price. The fair market price shall be determined by agreement on the basis of specified criteria and, failing agreement, by reference to a mutually acceptable expert or to arbitrators.

**8.6.8** Details of various categories of mineral titles, their duration, application and renewal fees and rentals and time within which decisions will be taken are tabulated in the annexed Tables I & II.

### 8.7 Environment

With the increasing focus on the environment and international obligations, Pakistan, in common with other countries, wishes to pursue an approach of sustainable development consistent with environmental priorities. Companies will be expected to ensure that their mining operations are carried out in an environmentally acceptable

and safe manner and that such operations are properly monitored. To ensure that the mineral resources development activities are undertaken in an appropriate manner, environmental stewardship needs to be incorporated throughout the development process. This can be achieved through:

i. The implementation of the regulatory environmental management measures including Environmental Impact Assessment, as well as environmental management system, plan and audit;

ii. The compliance with the Environmental Protection Act and other appropriate national and international standards, codes, guidelines, and policies;

iii. Ensuring effective implementation of progressive post-mining rehabilitation;

iv. Promoting the recovery, recycling and reuse of minerals, metals and mineral-based products;

v. Ensuring the implementation of effective mine waste management measures;

vi. Promoting and disseminating information on the use of best mining practices, public disclosure and corporate social responsibility (CSR); and

vii. The effective implementation of a Mine Safety and Health Management Plan.

### 8.8 Performance Guarantee

An applicant for grant or renewal of an Exploration License, Mineral Deposit Retention License or Mining Lease will be required to provide, at the time of the grant or renewal, a guarantee in a form satisfactory to the Licensing Authority, to ensure performance of the licensee's or lessee's obligations.

### 8.9 Rights Conferred

The holder of an Exploration License, Mineral Deposit Retention License or Mining Lease, subject to payment of dues and compliance with other prescribed obligations, shall have certain exclusive rights under the title including, for example, the right to enter upon the licensed/leased area (subject to the rights of surface owners) and to carry out exploration/mining operations in accordance with the terms of the license/lease and applicable laws and to remove the ore/concentrate from the leased area. Detailed rights and obligations of the licensee/lessee will be spelt out in the law governing the grant of mining titles.

### 8.10 Termination

A license or lease will only be terminated on the occurrence of certain specified events, for example, breach or non-performance of the terms, bankruptcy of the licensee or lessee, misrepresentation. The events will be specified in the relevant

Rules.

### 8.11 Mineral Agreement

**i.** If the Federal Government and the relevant Provincial Government are satisfied that a mining project (including any expansion, additions or new mine development using a substantial amount of the same infrastructure) is likely to have a life of more than 15 years with an expected capital expenditure of more than US$ 500 million, they shall enter into a mineral agreement with the mining company establishing that project and provide for mineral titles to be granted or renewable for sufficient periods to allow for the full commercial exploration, development and exploitation of any mineral deposits by the mineral title holders.

**ii.** The terms of a mineral agreement would be agreed between the Federal Government, the relevant Provincial Government and the mining company. In order to facilitate negotiations, the Federal Government will develop a model mineral agreement designed to provide additional comfort to a mining company and its lenders. The model mineral agreement will contain terms, including without limitation, with respect to the application, grant, duration, renewal, assignment and termination of mineral titles and the rights and obligations of mineral title holders that will protect the economic feasibility of the project and stabilize the legal and fiscal regimes (taxes, fees, and royalties) which the mining company will be subject to over the life of the project with necessary protection to the mining company in the event of changes thereto. This will allow the mining company and its lenders to make the necessary investment decisions. The model mineral agreement shall form the basis of negotiations with a mining company for a mineral agreement and may be varied for project specific reasons on a case to case basis to deal with project specific issues subject to ECC approval. The Federal Government will stand as guarantor of the Provincial Governments' obligations.

The existing Mineral Rules will be amended to remove any conflict/overlapping with or other effect on, and to give effect to, the rights and obligations of the mining company under the mineral agreement in line with best international practices and in the meantime, the respective Government shall pass an appropriate order through a notification under the applicable law exempting the class of minerals or the specific minerals covered by mineral agreements from the application of the relevant provisions of the Mineral Rules until the same are amended. The government will also give protection to the incentives and concessions given to mining companies under a mineral agreement through statutory amendments principally in line with those of the mineral sector.

The mineral agreement would have an overriding effect in case anything contained

therein is inconsistent with any law or rules.

### 8.12 Arbitration

Any question or dispute between a foreign mining investor and the Government arising out of or in connection with the terms of an agreement or of a granted mineral title shall be settled amicably where possible. Failing an amicable settlement within a reasonable period, such dispute shall be submitted to the procedures for sole expert determination or arbitral or other tribunal agreed in a mineral agreement or, where there is no such agreement or such agreement does not specify a tribunal, to the International Centre for Settlement of Investment Disputes (ICSID) or International Chamber of Commerce (ICC) for arbitration. The respective Government will pass such legislation as is necessary to provide for the effective enforcement in Pakistan of foreign arbitral awards. Disputes between the Government and a mining company of which the majority of the ultimate parent company's shareholders are Pakistani nationals will be settled by arbitration in Pakistan under the provisions of the Pakistan arbitration laws.

### 8.13 Joint Application

A license/lease may be granted jointly to two or more persons with respect to an area where such an application is made jointly and the liability of the applicants under the license/lease in such a case will be joint and several.

### 8.14 Areas not Available for Grant of Mineral Rights

**i)** Mineral rights over areas of historical interest, national or public parks and gardens, cemeteries, defense sensitive/strategic sites or such other areas as may be specified will not be available. The Governments will identify all such areas so that prospective investors are aware at the time of filing their applications whether the area applied for is available for licensing.

**ii)** In the event of discovery of any radioactive mineral and/or minerals required for generation of nuclear energy, the concessionaire/title-holder shall have no right over the radioactive mineral(s) so discovered and it shall comply with such instructions as may be given from time to time by the Government of Pakistan.

### 8.15 Competitive Bids

The Licensing Authority may award Exploration Licenses and Mining Leases having proven reserves through a transparent process of competitive public bids or sealed tenders, provided that such bids/tenders are published in the national or international press.

### 8.16 Public Notice of Grant of Licenses.

Notice of all grants, renewals, assignments, surrender and revocation of mineral titles and relinquishment of acreage will be published promptly in the Official Gazette, with details of the area and of the companies to whom the licence/lease/assignment is granted. However, copies of all such grants, renewals, refusals, assignments, surrenders and revocation of mineral title shall be supplied to Geo-data centre concerned.

### 8.17 Proprietary Rights over Data

All geo-data obtained by a licensee/lessee shall be a property of the Licensing Authority and shall be deposited at such offices and at such intervals as are specified in the Rules.

## 9. Fiscal Regime

### 9.1 The Overall Fiscal Package

i Mining activities being carried out in Pakistan are mainly through small scale mining by sole proprietorships, association of persons (partnerships) and in certain cases by private limited liability companies. Medium and large scale mining activity in the country has been carried out by private limited and public limited companies including non-resident (foreign) companies.

ii Turnovers not exceeding Rs.250 million have been allowed the benefit of a reduced corporate tax rate at 25% against the normal corporate tax rate of 35%.

iii **Agreement with Government**

In order to provide due comfort and security of rights to exploit mining reserves, to encourage investment in mining sector and to regulate the mining sector with effective monitoring mechanism, the rights and obligations of both the investors as well as the Provincial & Federal Governments need to be well documented. Accordingly in future, the mining activity including working obligations under the licenses and leases in particular with foreign investors will be reinforced through a comprehensive agreement executed between the investor and the Provincial/Federal Governments.

### 9.2 Income Tax

#### a) Rate of Corporate Tax

The Government embarked upon a progressive reduction in the effective rate of corporate tax. The applicable rate of tax as regulated under the Income Tax Ordinance, 2001 is 35% for companies.

**b) Minimum Corporate Tax**

A minimum amount of corporate tax is payable annually at the rate of 1.0% of the declared turnover by resident companies. However, where the corporate tax payable exceeds this amount in any year, the minimum tax is not charged.

**9.2.2.1 Exemption from taxation on refining of mineral deposits:**

Exemption from taxation on profits from refining or concentrating mineral deposits is also allowed at the rate and for the period prescribed under tax laws.

**9.2.2.2 Pre-commencement expenditure**

Expenditure incurred before commencement of business including feasibility studies is also allowed to be amortized on a straight line basis at the specified rates.

**9.2.2.3 Development Expenditure Deduction and Loss Carry Forward**

Expenditure incurred on exploration operations qualifies for immediate deduction in the determination of taxable income. Expenditure incurred for project development operations will be allowed deduction at a rate of 25% p.a., in line with international practice. However, the depletion allowance will be allowed as per provision of current tax laws.

**9.2.2.4 Ring-Fencing**

A mining company will be assessed for income tax on the entirety of its mining operations in Pakistan.

**9.3 Withholding Taxes**

**9.3.1 Dividends**

Except where lower rates are specified in the Avoidance of Double Taxation Treaty with the country of the recipient, the withholding tax levied on dividends paid is 10%.

**9.3.2 Non-Resident Contractors**

The rate of withholding tax is 6% on payments made either in full or part to a non-resident on the execution of a contract or sub-contract under a construction, assembly or installation project in Pakistan, including a contract for the supply of supervisory activities in relation to such project.

The tax collected shall be a final tax if the contractor furnishes on option under clause (4) of the Part-IV of the Second Schedule to the Income Tax Ordinance, 2001.

**9.3.3 Interest**

Interest paid to non-residents in respect of availed approved loans is exempt from

withholding tax.

### 9.3.4 Royalty & Fee for Technical Services

Tax @ 15% shall be deducted from the gross amount paid to a non-resident person on account of royalty and fee for technical services.

## 9.4. Other Taxes

### 9.4.1 Sales Tax

According to the budget proposals for 2006-07 the rate of sales tax on coal has been effectively reduced from 15% to Rs 100 per ton through fixation of sales tax on the pit head value of Rs 670 per ton.

### 9.4.2 Additional Profits Tax (APT)

An Additional Profits Tax is payable by large scale mining companies at agreed rates based on the economic projections as stipulated in the agreement with the Government. The APT will be determined based on a three-tier mechanism and will be payable only when the mining project achieves the agreed threshold level of profitability. The three-tier mechanism is summarized below

**Rate of Return (ROR)**

| Threshold | RRT Rate |
|---|---|
| 15% | 10% |
| 20% | 15% |
| 25% | 18% |

APT will only be paid if the mining project earns an after-tax real (i.e. inflation – adjusted) rate of return of 15%. The second and third tiers of RRT become payable once the profitability levels exceed 20% and 25% respectively

### 9.4.3 Zakat

Zakat is withheld from every Muslim who is not only a citizen of Pakistan but also 'sahib-i-nisab', at 2.5% of the value of the assets held on the first day of the month of Ramadhan. Non-Muslims and non-resident shareholders of a company are exempt from the requirement to pay Zakat on dividends.

### 9.4.4 Minor Additional Levies

#### 9.4.4.1 Workers Profit Participation Fund (WPPF)

A levy is payable to the Trustees of WPPF at an agreed percentage of net profits as per accounts for the year by companies and associations of persons with more than 20

members (partners) engaged in industrial undertaking, and employing 50 persons or more, whose paid-up capital is Rs 2.00 million or more and/or the fixed assets are Rs 4.00 million or more.

#### 9.4.4.2 Workers Welfare Fund (WWF)

A levy is payable by companies engaged in industrial undertaking at an agreed percentage of the taxable income of the year where such income is Rs 500,000 or more.

#### 9.4.4.3 Workers Children Education Cess

This is a provincial levy and is payable in every quarter by an establishment employing 20 workers or more at Rs 25.00 per worker per quarter, except the employer has made arrangements for the education of children of his or her workers.

#### 9.4.4.4 Employees Social Security Institution

This is a provincial levy requiring every employer employing ten or more workers with wages up to Rs 7000.00 per month to pay 370 per wage earner including Rs 20.00 contributed by the wage earner per month to the Institution while the workers and their family members are provided free medical treatment, maternity benefits and other assistance.

#### 9.4.4.5 Employees Old Age Benefits Institution

Every employer employing ten or more persons is to contribute 6% of their salary up to a maximum of Rs 210.00 per month to the Employees Old Age Benefits Institution in respect of each employee, including Rs.30 per month contributed by such employee who will be entitled to old age pension on attaining the age of 55 & 60 years in the case of women and men respectively.

#### 9.4.4.6 Excise Duty on Minerals:

All dispatches of specified minerals from mines are subject to levy of a cess/duty of excise at the notified rate from one to five rupee per ton, meant for financing measures for promoting the welfare of labour employed in the mining industry.

### 9.5. Concessions on Imports

#### 9.5.1 For Mining Companies and Mineral-based Industry

There is no customs duty and sales tax on the import of machinery, equipment, materials, specialized vehicles (4x4 non-luxury), accessories, spares, chemicals and consumables meant for mineral exploration phase. These concessions are applicable to Mineral Exploration and Extraction Companies or their authorized operators or contractors who hold permits, licenses, leases and who enter into agreements with the

Government of Pakistan or Provincial Government, subject to the condition that imported goods shall not be sold or otherwise disposed of without prior approval of the Federal Board of Revenue and payment of customs duties and taxes levy-able at the time of import.

However, customs duty at the rate of 5% ad-valorem with no sales tax is payable on import of such machinery meant for the mine construction phase or extraction phase, with the added advantage of entitlement for deferred payment of duty for a period of five years subject to 6% surcharge per annum.

### 9.5.2 For Local Manufacturers of Mining Machinery

In order to encourage local manufacture of machinery and equipment needed by the mining industry, raw material will be subjected to customs duty at the rate of 10% with 15% sales tax but on components and machinery customs duty at the rate of 10% with no sales tax, will be levied if imported by local manufacturers for mining machinery and equipment for mining operations only.

## 9.6 Surface Rent

The Provincial Governments will ensure adequate access and freedom to the license holder and/or the leaseholders to carry out the prospecting and exploration activities while the license holders and leaseholders, will provide fair compensation to the landowners.

## 9.7 Social Uplift Obligations

Leaseholders are expected to ensure provision of adequate facilities for sustained development of the mining area and the community.

## 9.8 Restoration and Rehabilitation

Leaseholders are obliged under the agreement with Government to carry out necessary and adequate restoration including landscaping to turn the mine site to the original position as far as possible.

## 9.9 Research, Development & Monitoring

The Mineral Departments of the federating units and Mineral Wing of the Ministry of Petroleum and Natural Resources through necessary skills development will carry out economic & legal analysis for the Federal & Provincial Governments mineral sectors to safeguard their interests.

## 9.10 Accounting and Record Keeping

Effort will be made through seminars and conferences to encourage the mining community/investors to prepare their financial statements in accordance with

International Financial Reporting Standards.

### 9.11 Funding and Credit Facilities

The Governments at both Federal and Provincial levels will take steps to ensure that adequate credit facilities are available to the mining sector while specialist organizations will developed to determine below-ground mining reserves for the benefit of financing institutions.

### 9.12 Mineral Exploration and Development Fund

The Federal Government will create a Fund with the objective to accelerate the exploration and development of mineral resources through the introduction of mechanization and latest mining techniques. The proposed fund would be allocated to the Provincial Governments with definite targets for the development of mining sector.

### 9.13 Infrastructure Development

Both the Federal and Provincial Governments will under take measures for developing infrastructure to facilitate investment in the mineral sector on Build, Operate & Transfer (BOT) basis and/or sharing basis.

### 9.14 Protection of Foreign Investment

Foreign private investment in Pakistan for the development and extraction of mineral resources is not only protected but the repatriation of original investment and profits earned thereon is guaranteed.

## 10. Royalty

### 10.1 Coal, Construction and Industrial Minerals

The current rates of royalties for coal, construction and industrial minerals will be retained as these minerals are primarily of interest to local mining companies, for sale in the domestic market. However, the royalty structure will be reviewed every 5 years with reference to pit-head value. Royalty rates on different minerals may be applied on a uniform basis within the Federating Units based on a rationalization of rates study considering such factors as are particular to the various types and groups of minerals.

### 10.2 Other Minerals

For all other minerals, a simplified uniform royalty system will be laid in all the federating units. Royalty will be charged *ad valorem* on the gross sales value determined on a third party arm's length transactions basis. The rates of royalties are:

i Precious stones 10-15%

ii Precious metals and semi-precious stones 3-5%

iii Base metals 2-5%

iv Others (other than i, ii, iii above) 1-2%

### 10.3 Royalty Determination and Payment

**10.3.1** Royalty will be determined on ad-valorem basis.

**10.3.2** Royalty will be assessed and paid on a monthly basis.

**10.3.3** The ad-valorem royalty rate has been linked, by and large, to the actual sale price realization as submitted by the mine owners in Pakistan in their sale tax returns and the same is to be computed on a quarterly basis. Royalty will be calculated at the first point where the mineral is sold or otherwise disposed of, without any deductions from gross value.

**10.3.4** Enhanced royalty rates would be levied based on negotiations and as mutually decided under an agreement with the investor of a mining project which would apply only when the project achieves the agreed threshold level of profitability. Stocked minerals and by-products will not be subjected to royalty payment until sold except for minerals produced in captive mines.

### 10.4 Royalty in Lieu of Local Levies.

Except for royalty, there will be no other Provincial or local levies or taxes imposed on minerals or mining operations. The claims of local bodies for any levy on minerals will be satisfied by the respective Government from the enhanced-composite royalty collections. To enhance revenue receipts from the mineral sector, stamp duty and registration fee on loan/ financing/security/land acquisition agreements shall be levied as per international practice.

### 11. Joint Ventures with Local Enterprises

The Governments will encourage joint ventures between foreign and local private investors and public sector corporations. In addition to royalty, the relevant Government will be entitled to participate in the project in the form of a negotiated equity, participating interest, enhanced royalty rate or such other structure as agreed to by the Government and the mining company.

## 12. Development of Infrastructure

Due regard shall be given to the following areas of activity leading to the

development of infrastructure in the mineral bearing areas/regions. Mechanisms will be developed to provide infrastructure support in special circumstances and under certain terms and conditions such as:

i The provision of required water rights for mining operations/projects;

ii The development of roads, provision of electricity, facilitation through water supply, labour colonies, medical and education.

**13. Research and Development (R&D) Enhancement**

Research and development in the mineral sector has to cover the entire activities from geological survey, exploration, mining, beneficiation, concentration of minerals to development of materials. Efforts will be directed towards the development of new technologies for conversion of existing mineral resources into viable economic resources. Indigenous technology has to be upgraded through research and adoption of technological innovations abroad. Efforts will also be directed to evolve low capital and energy saving processing systems.

R&D can be enhanced through:

i Creation of R&D revolving fund;

ii Promotion of regional and international collaboration;

iii Protection of intellectual property rights and commercialization of R&D findings; and

iv Strengthening partnerships and fostering cooperation amongst government, industry and academic institutions.

**13.1 Research in Mining Methods**

Research and development thrust shall be directed towards rock mechanics, ground control, mine design engineering, equipment deployment and maintenance, energy conservation, environmental protection, safety of operations and human engineering.

**13.2 Mineral Processing and Beneficiation**

Research organizations will be strengthened for development of processes for beneficiation and mineral elemental analysis of ores and ore dressing products. There shall be cooperation between and coordination among all organizations in public and private sector engaged in this task.

**14. Human Resource Development**

A qualified and productive workforce for the advancement of the mineral industry will be created through:

1. The design, formulation and promotion of relevant training and educational programs through Technical Education & Vocational Training Authority (TEVTA);
2. The provision of adequate scholarships, grants, bursaries, loans and other incentives by the respective Governments;
3. The implementation of re-training and skills upgrading programs and refresher courses.
4. Fostering collaboration amongst local and international public and private sector organizations through Federal Government.

### 15. Promotion, Marketing and Branding

The competitiveness of the mineral sector in a global economy requires effective product branding, promoting and marketing in order to secure market access. The Federal & Provincial Governments will take necessary steps in this regard.

### 16. Corporate Social Responsibility (CSR)

**1.** After entering into commercial production, small-scale mining companies would contribute an amount as determined by respective government annually towards the social uplift of the local population.

**2.** Large-scale mining companies would contribute towards the social uplift of the local population through the establishment and self-sustained maintenance of community improvement projects such as schools, dispensaries, supply of drinking water or upgrades of local roads, by contributing an annual Rupee equivalent of US$ 25,000. If a Mining Lease is granted to a mining company, such mining company shall, after the commencement of commercial production, contribute to the social uplift of the local population an annual Rupee equivalent of US$ 100,000.

**3.** Mining companies would participate in Government efforts to sustain the development level of mineral bearing areas, on depletion of the mineral resource.

**4.** The respective Government will collect this contribution and spend on the welfare projects prepared in consultation with local representatives of the area/region.

**5.** Out of such contributions, training shall be provided to Pakistani employees and Government officials by foreign and local mineral exploration and production companies.

## 17. Small-Scale Mining

**17.1** Investment in small-scale mining (capital employed of less than Rs300 million) will be confined to Pakistani nationals.

**17.2** To foster the development of small-scale mining in Pakistan, support will be provided to small-scale miners through such means as:

1. Capacity building by adequate exposure to advance mining practices and corporate culture at all tiers of mine management with special focus on skill enhancement;
2. Provision of credit facilities;
3. Provision of machinery and equipment warehouses at cheaper rates and rentals;
4. Establishing labour colonies to suppress the migratory trend of labour;
5. Provision of education for the transfer of new technology/techniques;
6. Provision of a one-window facility for mine inspection;
7. Improving the role of inspecting agencies as facilitators;
8. Encouraging unit development to foster corporate mining culture;
9. Ensuring transparency and uniform application of rules through digitized cadastres, to ensure legitimate access to the area on payment of rent compensation assessed by Licensing Authority (LA);
10. Harmonizing effective working relationships among stakeholders by enabling appropriate representation on all forums and committees;
11. Providing a candid forum of chambers of mines at regional as well as federal level.

## 18. Provincial Inspectorates of Mines

In recognition of the links between safety and the production of minerals, Inspectorates of Mines will be established and charged with the responsibility for ensuring that acceptable safety and health standards are established and practiced in Pakistan's mining sector.

Specifically, the Inspectorates of Mines will carry out the following programme:

1. Enhancing health and safety measures in mining operations;
2. Providing uniform training in the area of health and safety laws, use of explosives, electricity; and
3. Research and development for improvements to the safety and health of the mining workforce, such as in finding substitutes to the use of timber in mining operations.

## 19. Linkages with other Sectors

1. In order to develop skills in various mining disciplines, companies involved in medium and large-scale mining operations will be required to provide a specified number of facilities for technical education and on the job training, either in Pakistan or abroad.

2. In order to develop meaningful backward and forward linkages with other sectors of the economy, mining companies will be required to utilize in their operations Pakistani goods and services, to the extent available on competitive basis with international supplies. Secondary and tertiary processing of the ores within Pakistan will be encouraged.

## 20. Miscellaneous Matters

### 21.1 Protection from Expropriation

The Protection of Economic Reforms Act 1992 provides that no foreign industrial or commercial enterprise established or owned in any form by a foreign or Pakistani investor shall be compulsorily acquired or taken over by the Government. The mining sector will equally have this protection.

### 20.2 Repatriation of Capital and Profits

The Foreign Private Investment (Promotion and Protection) Act, 1976 guarantees that a foreign investor in an industrial undertaking may at any time repatriate capital and profits. This includes mining ventures.

### 20.3 Insurance

Mining operators will be encouraged to insure their assets and risks with international insurance companies.

### 20.4 Formalization of Mineral Policy

The respective Federal and Provincial Ministries/Departments will undertake necessary administrative measures and amendments to relevant mining and fiscal laws to give full effect to the provisions of this Policy. This will be done mainly by making the appropriate amendments in the Regulation of Mines, Oilfields and Mineral Development (Government Control) Act, 1948 and related rules and enforcement of the same at Federal/Provincial levels.

## 21. Implementation of National Mineral Policy

**21.1** The respective Federal and Provincial Ministries/Departments will take all administrative measures and amendments to the relevant mining, fiscal and other laws to give full effect to the provisions of this Policy.

Mining companies presently operating in Pakistan can opt for the Policy terms; where mining companies have existing agreements with the Federal Government or Provincial Government, if the mining company so elects, such Governments will concur to amend their agreements to bring the same in conformity with the Policy.

**21.2** The Federal Government/Provincial Governments/federating units acknowledge that continuous evaluation and review is important for the successful implementation of the National Mineral Policy-2. Thus, the Ministry of Petroleum and Natural Resources shall, in collaboration with other concerned government departments/agencies, issue periodic progress reports on the implementation of this Policy.

**21.3** In implementing this Policy, the Government will take into account appropriate internationally established standards and Pakistan's international commitments to sustainable development and trade agreements. Pakistan will promote the Policy's objectives both domestically and internationally, by working bilaterally and multilaterally with other countries and through international organizations, such as the United Nations and other agencies. The Federal Government shall form a close working relationship with the federating units, the private sector and other stakeholders in implementing the National Mineral Policy-2 towards the successful and beneficial development of the nation's mineral resources.

**21.4** The Mineral Wing of the Ministry of Petroleum and Natural Resources will act as Secretariat for coordination with the federating units for implementation of the National Mineral Policy-2.