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MINERAL DEVELOPMENT FOR GROWTH: DEVELOPING A MINERAL POLICY FRAMEWORK AND MINING CADASTRE SYSTEM FOR PAKISTAN

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A thesis submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Doctor of Philosophy.

Johannesburg, 2017

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 Doctor of Philosophy 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:

_____

Hamid Ashraf

Student Number 804540

..... May 2017

ABSTRACT

Mineral resources can act as key for economic growth and have the potential to transform economies and societies. The extent to which such transformation takes place varies depending upon the method of their use. Pakistan is gifted with significant mineral resources that have the potential to lift its economy and bring prosperity to its citizens. For this to happen, Pakistan must formulate a mineral policy based on leading practices to attract mining investment and increase the sector contribution to GDP in the range of 3 – 5%. The fundamental objective of this research is to investigate the process of mineral policy development of Pakistan against leading developing minerals-based economies and to formulate a strategic fit mineral policy framework, keeping in mind its fragile political, socio-economic and security environment.

Developing countries with mineral wealth must try to gain maximum benefit from their mineral resources. These are national assets and should be managed responsibly and not used unwisely. For the gap analysis between Pakistan's current mineral policy framework and leading developing countries, five criteria were formulated. Two basic principles were kept in mind with the choice of countries; first, a developing country like Pakistan should be selected; and second, at least two countries should be Islamic. Eight developing courtiers, Chile, Mexico, Brazil, Peru, India, South Africa, Kazakhstan and Turkey were selected for analysis.

The key elements for the mineral sector of Pakistan are; Pakistan's mineral sector is lacking an enabling institutional framework for efficient access to mineral resources; it lacks an enabling fiscal and regulatory framework for mining to enhance the economic attractiveness of the sector; and the absence of a mining Cadastre System to secure mineral rights prevents security of tenure. Six stakeholders, Government and its implementation bodies; Mining industry; Local communities and their representatives; Law enforcing agencies (LEA's); Religious Monarchs; and Financial institutions were identified and their role defined in policy development framework. A new mineral Policy Framework was formulated based on seven key enablers, namely; institutional framework; stable political economy; legal framework; regulatory framework; fiscal framework; stakeholder participation; and sustainable development. A new organisational structure of the Ministry is proposed based on the generally accepted organisational structure of tiers, implementation and regulatory bodies.

An implementation plan based on three building blocks was developed for implementation of the new Mineral Policy Framework. Implementation of an enabling Institutional framework and other key elements of mineral policy framework were suggested to be implemented through the constitution of a Mineral Development Advisory Committee (MDAC). A PakMining Cadastre system was suggested to be constituted under the new Ministry for secure minerals rights system. System design and the geometrical architecture of the PakMining Cadastre System were also suggested.

DEDICATION

To my loving wife for her faith in me, my lovely sons for happily scarifying the time they deserved from me so much and my parents and siblings for their endless love, support and encouragement.

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Table of Contents

ABSTRACT ..…….. ii

DEDICATION …… iv

ACKNOWLEDGEMENTS …… v

List of Figures…….….. xix

List of Tables ..……. xxv

List of Acronyms…….. xxix

1. INTRODUCTION AND BACKGROUND OF THE PROBLEM.. 1

1.1 Introduction...…….…… 1

1.2 Why this Study.....…….…… 4

1.2.1 Relationship of mineral development and growth ...…….....…….. 4

1.2.2 Modern mining legislation vis-à-vis GDP growth.....…… 6

1.2.3 Mineral development and Mining Cadastre System ...……..…… 7

1.3 Problem Statement …….……...…… 9

1.4 Objectives of the Research .....…….... 12

1.5 Fundamental Question...….....…… 12

1.6 Follow up Research Questions ...……... 12

1.7 Methodology..... 13

1.8 Implementation Plan ……..... 13

1.9 Research Design ...…….....…….... 14

1.10 Structure of Thesis ...……..... 16

1.11 Significance of the Study ...…….....…… 19

1.12 Conclusion..... 19

2 RESPONSIBLE MINERAL DEVELOPMENT..... 21

2.1 Introduction .....…….. 21

2.2 What is Responsible Mineral Development (RMD)? 22

2.2.1 Definition ...…….....……. 22

2.2.2 Responsible mineral development-The basic principle...…...…..……. 23

2.2.3 Why responsible mineral development……...……. 24

2.3 Impacts of Mining …….....…… 24

2.3.1 Mining impacts and responsible mineral development ....…… 26

2.3.2 Manageable environmental damage ...…….....…… 26

2.3.3 Impartial and across the board development of affected Communities 27

2.3.4 Profitable economic outcome ...…….....……. 28

2.4 Changing Corporate Behaviour - The Mapungubwe coal project.....…….……..... .. 31

2.4.1 The Project ……..…….. 31

2.4.2 The litigation ……..…….……...…….. 32

2.4.3 Achievements of litigation strategy ...……..……. 33

2.4.4 Lessons learnt …….....…… 34

2.4.5 Responsible Conflict resolution - Tintaya Copper Mine…...…… 34

2.5 Principles and Building Blocks of Responsible Mineral Development 35

2.5.1 Responsible Mineral Development Initiative ...…….....……. 36

2.5.2 Natural resource charter …….....……..... 37

2.5.3 The Extractive Industries Transparency Initiative (EITI) standard..... 37

2.5.4	International Council on Mining and Metals (ICMM)'s Sustainable Development Framework.....	37
2.5.5	Responsible Mineral Development Matrix.....	40
2.5.6	Other international initiatives impacting responsible minerals development.....	41
2.6	Conclusion.....	42
3	**PAKISTAN - AN OVERVIEW……...…….. **	**44**
3.1	Introduction..……..	44
3.2	Geographical Location and its Importance …….....	44
3.3	Geology and Mineralization of Pakistan ……...….....….	47
3.3.1	The plains ...….....……...	47
3.3.2	The platform area ...…….....	48
3.3.3	The Folded belt …….....……	48
3.3.4	Mélange zone..…….....…….	48
3.3.5	Himalayan Belt ...…….....……..	48
3.3.6	Kohistan belt ...…….....……	48
3.3.7	Karakoram belt …….....…….	49
3.3.8	Chagai Arc ...……...……..	49
3.3.9	Makran trench zone …….....……	49
3.4	Economy of Pakistan …….....……..	51
3.5	Mineral Policy Development Framework - Pakistan ...……	54
3.5.1	Legal framework.....	54
3.5.2	Mining revenue and taxation.....	57

3.6	Mineral Assets Knowledge Base.....	58
3.7	Summary of Concerns.....	62
3.8	Conclusion.....	62
4	**SELECTION OF DEVELOPING COUNTRIES THAT CAN OFFER LESSONS FOR PAKISTAN.....……..**	**63**
4.1	Introduction.....……..	63
4.2	Evaluation of Country Economic and Political Risk for International Investors (Moody's Rating) …….....	64
4.2.1	Moody's Investment grade ratings..……....……	65
4.2.2	Moody's rating system..……..…….....……	65
4.2.3	Moody's ratings for Pakistan...…….....…….	66
4.2.4	Selection of developing countries based on Moody's ratings.....	67
4.3	Mining Countries Attractiveness (Behre Dolbear's Ranking).....	68
4.3.1	Behre Dolbear Group Inc.....	68
4.3.2	Behre Dolbear's ranking system.....	68
4.3.3	Developing countries selected.....	69
4.4	Global Exploration Spending Patterns.....	70
4.4.1	Data source.....	70
4.4.2	World leading exploration spending patterns 2013.....	70
4.4.3	Developing countries selected.....	72
4.5	Emerging Mining Countries Rating by Alliant.....	74
4.5.1	Alliant Emerging Markets ratings.....	74
4.5.2	Alliant political & economic risk analysis.....	74

4.5.3	Developing countries selected.....	74
4.6	Gold, Copper and Coal Production Trends.....	74
4.6.1	Gold production trend.....	75
4.6.2	World gold production.....	75
4.6.3	Copper production trend.....	76
4.6.4	World copper production.....	76
4.6.5	Coal production trend.....	76
4.6.6	World Coal Production.....	77
4.6.7	Selection of countries from this criterion.....	77
4.6.8	Ratio estimation method of assigning weights of importance.....	77
4.7	Selection of Countries based on Five Criteria.....	79
4.8	Final Selection of Countries.....	81
4.9	Conclusion.....	84
5	**POLICY ANALYSIS OF SELECTED COUNTRIES……....**	85
5.1	Introduction……..…….	85
5.2	Chile.....	86
5.2.1	Legal framework …….....………..	87
5.2.2	Regulatory framework ……..	87
5.2.3	Mining royalties and taxation …….....…	87
5.2.4	Fraser Institute rankings .....……	88
5.3	Mexico .....…….....	89
5.3.1	Legal framework …….....…….....	89

5.3.2 Regulatory framework ……..……... 90

5.3.3 Mining royalties and taxation …….…… 90

5.3.4 Fraser Institute rankings for Mexico – 2014 ...……...…… 91

5.4 Brazil..... 91

5.4.1 Legal framework ……..... 92

5.4.2 Regulatory framework..... 92

5.4.3 Mining royalties and taxation..... 92

5.4.4 nstitute rankings for Brazil – 2014..... 93

5.5 Peru..... 93

5.5.1 Legal framework..... 94

5.5.2 Regulatory framework..... 95

5.5.3 Royalties and taxation..... 95

5.5.4 Fraser Institute rankings .....……..... 95

5.6 India .....……..… 96

5.6.1 Legal framework ……..……. 97

5.6.2 Regulatory framework …….……. 97

5.6.3 Mining royalties and taxation ……..……. 97

5.6.4 Fraser Institute rankings for India – 2014 ……..... 98

5.7 South Africa …….……. 99

5.7.1 Legal framework..... 100

5.7.2 Regulatory framework .....…….. 100

5.7.3 Mining royalties and taxation..... 100

5.7.4	Fraser Institute rankings for South Africa-2014.....	101
5.8	Kazakhstan.....	102
5.8.1	Legal framework.....	102
5.8.2	Regulatory framework.....	103
5.8.3	Mining royalties and taxation.....	104
5.8.4	Fraser Institute rankings for Kazakhstan – 2014.....	105
5.9	Turkey .....……..	105
5.9.1	Legal framework.....	106
5.9.2	Regulatory framework.....	106
5.9.3	Mining royalties and taxation.....	106
5.9.4	Fraser Institute rankings for Turkey – 2014.....	107
5.10	Comparative analysis of the selected countries.....	108
5.11	Lessons for Pakistan.....	115
5.12	Conclusion...……	117
6	**ROLE OF STAKEHOLDERS IN POLICY DEVELOPMENT PROCESS...** …….	118
6.1	Introduction...…….	118
6.2	Stakeholder Definition.....	120
6.3	Types of Stakeholders.....	121
6.3.1	Internal stakeholders.....	121
6.3.2	External stakeholders.....	121
6.4	Role of Stakeholders in Policy Development Process.....	122
6.5	Stakeholder Engagement Process.....	123

6.6 Stakeholders Identification for Pakistan's Mineral Sector..... 124

6.6.1 Government, its subsidiaries, and implementation bodies..... 128

6.6.2 Mining industry..... 128

6.6.3 Local communities and their representatives..... 129

6.6.4 Law enforcing agencies (LEA's)..... 132

6.6.5 Religious Monarchs..... 134

6.6.6 Financial institutions..... 136

6.7 Stakeholder's Involvement in Pakistan's Mineral Policies..... 136

6.8 Conclusion..... 138

7 POLICY CONSIDERATIONS FOR THE MINERAL SECTOR OF PAKISTAN: A GAP ANALYSIS…..... 139

7.1 Introduction..... 139

7.2 Gap analysis – Definition..... 139

7.3 Gap Analysis for the Mineral Sector of Pakistan..... 140

7.4 History and Current Practices .....…….. 141

7.4.1 Political and economic paradigm of Pakistan..... 141

7.4.2 Legal framework ..……. 146

7.4.3 Regulatory framework..... 146

7.4.4 Mining royalties and taxation..... 147

7.5 International Leading Practices..... 148

7.6 Gap Analysis..... 151

7.6.1 Political stability versus economic growth..... 151

7.6.2 Islamic economic system and its effects on the economy of Pakistan... 153

7.6.3 Other economical parameters..... 156

7.6.4 Legal framework..... 157

7.6.5 Regulatory framework..... 161

7.6.6 Mining royalties and taxation..... 163

7.7 Summary of gap analysis and best practice (Detail gaps in Annexure I)..... 166

7.8 Conclusion..... 167

8 MINERAL POLICY DEVELOPMENT FRAMEWORK FOR PAKISTAN..... **168**

8.1 Introduction.…….....…… 168

8.2 Key Elements of Mineral Policy Development Framework for Pakistan .....…….. 173

8.3 Elements for Mineral Policy Development..... 175

8.3.1 Element 1: Enabling institutional framework..... 175

8.3.2 Element 2: Political economy..... 179

CS 1 Case Study 1: China Pakistan Economic Corridor (CPEC)..... 181

8.3.3 Element 3: Legal Framework - Existence of a clearly defined legislation..... 184

8.3.4 Element 4: Regulatory framework..... 184

8.3.5 Element 5: Strong treasury with an appropriate fiscal regime..... 185

8.3.6 Element 6: Stakeholder participation..... 188

8.3.7 Element 7: Sustainable mineral development..... 193

8.4 A Summary of Strategic Fit Measures for 194

Pakistan.....

8.4.1 Enabling institutional framework to provide an investor-friendly environment..... 194

8.4.2 Political economy is imperative for mineral development..... 194

8.4.3 Regulatory and legal mining reforms..... 195

8.4.4 Fiscal regime reforms..... 196

8.4.5 Stakeholder's involvement in policy formulation process..... 196

8.5 Conclusion..... 197

9 IMPLEMENTATION..... 199

9.1 Introduction..... 199

9.2 What is Policy Implementation?..... 199

9.3 Policy Implementation Framework..... 200

9.4 Building Block 1: Implementing of an enabling Institutional framework and other key elements of mineral policy framework..... 201

9.4.1 Implementing element 1: Enabling institutional framework..... 203

9.4.2 Implementing element 2: Political economy..... 204

9.4.3 Implementing element 3: Legal Framework - Clearly defined legislation..... 205

9.4.4 Implementing element 4: Regulatory framework..... 205

9.4.5 Implementing element 5: A strong Treasury with an appropriate fiscal regime..... 206

CS 2 Case Study 2: Benefit Sharing - Mineral Revenues, Expenditure and Saving Policy in Botswana..... 207

9.4.6 Implementing element 6: Stakeholder participation..... 210

9.4.7	Implementing element 7: Sustainable development.....	211
9.5	Building block 2: Mineral Database and Mining Cadastre System.....	212
9.5.1	Meaning and evaluation of term “Cadastre”.....	213
9.5.2	What is a Mining Cadastre?.....	214
9.5.3	The new PakMining Cadastre System – Conceptual design and system architecture.....	215
9.5.4	The geometrical architecture of PakMining Cadastre.....	217
9.5.5	Planning and implementation of the new PakMining Cadastre System	220
9.5.6	Institutional framework: Directorate of Mining Cadastre and GIS Database.....	224
9.5.7	Mandate and functions of the Directorate of Mining Cadastre and GIS Database.....	225
9.5.8	Inter-institutional position: Directorate of Mining Cadastre and GIS Database.....	226
9.5.9	Implementation principles for an effective PakMining Cadastre and Mineral Rights Management System.....	229
9.6	Building Block 3: Monitoring and Evaluation.....	230
9.7	Conclusion.....	231
10	**CONCLUSION AND RECOMMENDATIONS.....**	**233**
10.1	Introduction.....	233
10.2	Research Findings.....	234
10.2.1	Mineral Policy Framework for Pakistan.....	234
10.2.2	Comparative analysis of Pakistan’s Mineral Policy Framework with selected developing countries.....	237

10.2.3 Role of stakeholders in the Policy Development Process..... 239

10.2.4 Role of Mining Cadastre System for a secure mineral rights system.... 241

10.2.5 Implementation plan..... 241

10.3 Research Contribution..... 241

10.3.1 Mineral Policy Development Framework for Pakistan..... 242

10.3.2 The new PakMining Cadastre System..... 243

10.4 Recommendations..... 244

10.4.1 Recommendation 1: Enabling institutional framework to provide an investor-friendly environment..... 244

10.4.2 Recommendation 2: Political economy is imperative for mineral development..... 245

10.4.3 Recommendation 3: Legal and regulatory reforms in the mining sector..... 246

10.4.4 Recommendation 4: Fiscal reforms in the mining sector of Pakistan.... 246

10.4.5 Recommendation 5: Stakeholders participation framework..... 248

10.4.6 Recommendation 6: Sustainable mineral development..... 249

10.4.7 Recommendation 7: Mining Cadastre System and GIS Database..... 249

10.4.8 Recommendation 8: Need for skills……... 249

10.5 Conclusion..... 249

References……. 250

Appendix A Policy parameters and gap analysis of selected developing countries and Pakistan..... 270

Appendix B	Tasks and responsibilities of each Wing - Ministry of Petroleum and Natural Resources.....	282
Appendix C	Organisation of Pakistan Mineral Development Corporation (PMDC)…….	284
Appendix D	Institutional gap in Pakistan's mineral industry and suggested fit for purpose measures…….	285
Appendix E	Current Organisational structure of Geological Survey of Pakistan (GSP)……...	289
Appendix F	Implementation plan for political economy and infrastructure development framework for Mineral Policy Development of Pakistan.....	290
Appendix G	Implementation plan for legal and regulatory framework for mineral policy development of Pakistan……	294
Appendix H	Fiscal framework – International best practice and strategic fit for measures for Pakistan.....	300
Appendix I	Sustainable development issues and implementation plan for their remedies.....	302

List of Figures

Figure 1.1	Mineral deposit map of Pakistan ....……	2
Figure 1.2	Mongolian GDP growths (annual %) from the time of start of IDA support.....	7
Figure 1.3	Fraser Institute's regularity risk assessment based on the	9

survey of leading mining and exploration companies 2013-14..

Figure 1.4 Average GDP per capita income of developing countries with sound mineral policy framework from 1995- 2013..... 10

Figure 1.5 Pakistan yearly GDP growths with mining contribution between two national mineral policies..... 11

Figure 1.6 Yearly GDP growth rate and mining contribution for Pakistan from 1995- 2013..... 11

Figure 1.7 Overall conceptual design..... 14

Figure 1.8 Development process of a strategic fit mineral policy framework..... 15

Figure 1.9 Design close loop GIS based schema for Mining Cadastre System..... 16

Figure 2.1 Key mining impacts and responsible mineral development…… 26

Figure 2.2 Mining and its impacts on ground and underground water……. 27

Figure 2.3 Mining issues across the world and their nature of the conflict.. 30

Figure 2.4 Mapungubwe project map in North East of Mapungubwe cultural landscape…… 31

Figure 2.5 Series of events which altered CoAL share price..... 33

Figure 2.6 Fundamental elements of ICMM sustainable development framework……... 40

Figure 3.1	Geo strategic location of Pakistan……..	45
Figure 3.2	Map of Pakistan……..	46
Figure 3.3	Map showing geo strategic importance of Pakistan……	47
Figure 3.4	Extension of Tethyan belt into Chagai arc of Pakistan……..	50
Figure 3.5	Geological sub-division of Pakistan……	50
Figure 4.1	Pakistan's Moody's ratings from 1995-2014……..	67
Figure 4.2	Planned worldwide exploration budget by region for 2013……	71
Figure 4.3	GIS map showing percent of global active mineral exploration sites by region in 2013……	72
Figure 4.4	Evaluation of selected developing countries according to Fraser institute survey…….	83
Figure 5.1	GIS map showing Fraser Institute investment attractive index, Policy perception index and percent of World exploration budget for eight selected countries.....	86
Figure 5.2	Fraser Institute 2013 survey results for Chile.....	88
Figure 5.3	Fraser institute annual survey results for Mexico.....	91
Figure 5.4	Fraser institute annual survey results for Brazil.....	93
Figure 5.5	Fraser institute 2013 survey results for Peru.....	96
Figure 5.6	Fraser institute annual survey results for India.....	99

Figure 5.7	Fraser institute annual survey results for South Africa.....	101
Figure 5.8	Fraser institute annual survey results for Kazakhstan.....	105
Figure 5.9	Fraser institute annual survey results for Turkey.....……	107
Figure 6.1	Levels of stakeholder participation vis-a-vis type of stakeholders.....	124
Figure 6.2	Stakeholders analysis matrix: who should be involved?.....	125
Figure 6.3	Geological locations of mineral resources of Pakistan.....	133
Figure 6.4	Areas of Pakistan under terrorist and insurgent influence.....	134
Figure 7.1	Steps to performing a gap analysis……..	141
Figure 7.2	Comparison for annual GDP growth rate between democratic and military governments.....	145
Figure 7.3	Economic (GDP %) growth of selected developing mineral base economies 1990-2013.....	152
Figure 7.4	Islamic finance assets growth Vs. GDP growth rate - UAE (2000- 2011).....	156
Figure 7.5	A comparison of the mining fiscal regime of selected countries with Pakistan.....	164
Figure 8.1	Organisational structures of Ministry of Petroleum and Natural Resources of Pakistan.....	171
Figure 8.2	Generally accepted scheme of organizational structure.....	172

Figure 8.3	Key mineral policy elements and their inter relationship – development of mineral policy framework for Pakistan.....	174
Figure 8.4	Suggested Organisation of the Ministry of Mineral Development for Pakistan.....	178
Figure 8.5	New suggested organizational structure of Geological Survey of Pakistan (GSP).....	179
Figure 8.6	Importance of CPEC for mineral sector of Pakistan- Western CPEC route to boost the infrastructure around mineral rich areas.....	183
Figure 8.7	Location of mineral resources and role of Army in providing security to mineral rich areas of Pakistan.....	192
Figure 9.1	Building blocks for implementation plan of mineral policy framework for Pakistan.....	201
Figure 9.2	Composition of Mineral Development Advisory Committee (MDAC) under the auspices of Ministry of Planning and Development.....	203
Figure 9.3	Expectations and concerns by stakeholders in the process of benefit sharing…….	210
Figure 9.4	Extractive industry (EI) value chain for natural resource management……	213
Figure 9.5	Basic principles for an efficient and effective mining licenses	214

granting system……...

Figure 9.6 Role and principles followed by a progressive Mining Cadastre System……. 215

Figure 9.7 System design architecture of PakMining Cadastre System…... 217

Figure 9.8 Evaluation from unrestricted geometry rights to prefixed cellular" Polygons controlled by a predefined and standard grid used in the national maps……. 219

Figure 9.9 User interface of suggested PakMining Cadastre System..... 220

Figure 9.10 Organisation of Inspectorate of Land and Minerals Rights under the new Ministry of Mineral Development……... 225

Figure 9.11 Inter-institutional coordination between the Directorate of Mining Cadastre System and GIS Database and Ministry of Petroleum and Natural Resources……... 228

Figure 9.12 Implementation principles for effective and transparent Mining Cadastre System…….. 229

Figure 9.13 Implementation and Monitoring workflow..... 231

Figure 10.1 Conceptual framework followed for undertaking the research... 235

Figure 10.2 Criteria for selection of developing countries and the countries selected..... 237

Figure 10.3 Critical stakeholders identified in Policy Development Process 240

for Pakistan.....

Figure 10.4 Process of formulation of a strategic fit mineral policy framework for Pakistan…… 242

Figure 10.5 Gap analyses between eight developing countries with Pakistan and its process of development..... 242

Figure 10.6 Institutional support and the principles followed by PakCadastre System…… 243

Figure 10.7 Recommended progressive fiscal regime for mineral sector of Pakistan……... 247

Figure 10.8 Recommended investment schemes for mineral revenues of Pakistan……... 248

List of Tables

Table 1.1 Mining sector contribution to the country's economy – 2013.... 6

Table 1.2 Correlation between Fraser Institute and GDP per capita income of selected developing leading mining countries…….. 10

Table 2.1 Definitions of sustainable mineral development and responsible mineral development..... 22

Table 2.2 Mining issues due to irresponsible mineral resource development…… 29

Table 2.3	Codes of conduct and standards developed for responsible mineral development by different international and regional organizations……...	36
Table 2.4	Guiding principles for responsible mineral development formulated by different international organizations (Elements of responsible mineral development matrix are given in the middle column)……...	38
Table 2.5	Responsible mineral development matrix……...	40
Table 3.1	The Global infrastructure ranking, 2013-14…….…	52
Table 3.2	Overview of Pakistan……..	53
Table 3.3	Mineral and petroleum policy development of Pakistan…….	57
Table 3.4	Mineral assets knowledge base of Pakistan…….....	58
Table 3.5	Administration of rights (Pakistan)…….	59
Table 4.1	Assigning scores to Moody's ratings for ranking the countries..	66
Table 4.2	Selected developing mineral countries according to Moody's ratings……..	67
Table 4.3	Selected developing mineral countries with Islamic back ground according to Moody's ratings…….	68
Table 4.4	Behre Dolbear's rakings for developing mineral countries……	69

Table 4.5	Behre Dolbear's rakings for developing mineral countries with Islamic back ground…….....	69
Table 4.6	Planned worldwide exploration budget by region for 2013……	72
Table 4.7	Ranking of developing countries based on planned worldwide exploration budget by region for 2013……	73
Table 4.8	Alliant emerging markets ratings for developing countries for 2013…….	74
Table 4.9	World gold production for 2013 in developing countries……...	75
Table 4.10	World gold production for 2013 in developing countries with Islamic back ground……	75
Table 4.11	World copper production for 2013 in developing countries…...	76
Table 4.12	World copper production for 2013 in developing countries with Islamic back ground……	76
Table 4.13	World coal production for 2013 in developing countries……...	77
Table 4.14	World coal production for 2013 in developing countries with Islamic back ground……	77
Table 4.15	Weight ratio estimation procedure for gold, copper and coal….	78
Table 4.16	Selection of developing countries based on weight ratio estimation procedure for gold, copper and coal……..	78

Table 4.17	Weight ratio estimation procedure for selection criteria…….	79
Table 4.18	Selection of developing countries based on weight ratio estimation procedure for comparison with Pakistan……...	80
Table 4.19	Selection of developing countries with Islamic back ground based on weight ratio estimation procedure for comparison with Pakistan……...	81
Table 5.1	Selection of developing countries with Islamic back ground based on weight ratio estimation procedure for comparison with Pakistan……...	109
Table 5.2	Royalty, tax regime and mining specific incentives for selected developing countries.....	110
Table 5.3	Best practices of selected eight developing mineral based economies and its comparison with Pakistan.....	112
Table 5.4	Statistical analysis of the tax regime of eight developing countries.....	112
Table 5.5	A comparative analysis of Fraser Institute ranking for eight selected countries……	113
Table 5.6	Definitions of types of democracy and types of economy……..	113
Table 6.1	Dimensions for inclusion in the stakeholder identification process.....	120
Table 6.2	Stakeholder impact analysis in Pakistan's mining industry.....	127

Table 6.3	Provincial distribution of mineral wealth and corresponding poverty reduction indicators- Pakistan.....	131
Table 7.1	Form of governance in Pakistan since 1947 and its effects on GDP growth rate.....	143
Table 7.2	Leading practices of selected eight developing mineral based economies and its comparison with Pakistan.....	149
Table 7.3	Comparison of legal framework of selected developing countries with Pakistan.....	159
Table 7.4	A summary of the administrative authority for administration of minerals in Pakistan.....	161
Table 7.5	A comparison of regulatory regime of Pakistan and Chile.....	162
Table 7.6	A comparison of royalties and taxes of Pakistan with selected developing countries.	165
Table 8.1	Eleven Private Companies Limited under the control of Ministry of Petroleum and Natural Resource of Pakistan.....	170
Table 9.1	Planning principle to be included in the legal framework for implementation of a Mining Cadastre System……	222

List of Acronyms

ASAPA	The Association of Professional Architects of Southern Africa
ASM	Artisanal & Small-scale Mining
BLA	Baluchistan Liberation Army

BLF	Baluchistan Liberation Front
BRIC	Brazil, Russia, India, and China
CFEM	Compensation for Exploitation of Mineral Resources
CIT	Corporate Income Tax
CoAL	Coal of Africa
COAS	Chief of the Army Staff
Corp	Corporation
CPEC	China Pakistan Economic Corridor
CS	Case Study
CSR	Corporate Social Responsibility
DG	Director General
DMR	Department of Mineral Resources
DNPM	National Department of Mineral Production, Brazil
DNPMD	Departamento Nacional de Produção Mineral
ECOWAS	Economic Community Of West African States
EI	Extractive Industry
ECE	Economic Commission for Europe
EIA	Environmental Impact Assessment

EITI	Extractive Industries Transparency Initiative
EL	Exploration licence
EPT	Excess Profit Tax
ESG	Environmental, Social and Governance
ESPS	Employee Statutory Profit Sharing
EWT	Endangered Wild Life
FDIs	Foreign Direct Investments
FATA	Federally Administered Tribal Area
GB	Gilgit Baltistan
GDP	Gross Domestic Product
GHGs	Greenhouse Gases
GHPL	Government Holding (Pvt) Limited
GIA	Government Investment Account
GIS	Geographic Information System
GOP	Government of Pakistan
Gov	Government
GPS	Global Positioning System
GRI	Global Reporting Initiative

GSP	Geological Survey of Pakistan
HDIP	Hydrocarbon Development Institute of Pakistan
ICMM	International Council on Mining and Metals
ICT	Information and Communication Technologies
ICT	Islamabad Capital Territory
IDA	International Development Association
IFC	International Finance Corporation
IIED	International Institute for Environment and Development
IMF	International Monetary Fund
INGEMMET	Institute of Geology Mining and Metallurgy, Peru
IPs	Interested parties
IRMA	Initiative for Responsible Mining Assurance
ISGSL	Inter State Gas Systems (Pvt) Limited
IUNC	International Union for Nature Conservation
JSE	Johannesburg Stock Exchange
KPK	Khyber Pakhtunkhwa
LCDC	Lakhra Coal Development Company
LEA's	Law Enforcing Agencies

MAG	Mapungubwe Action Group
MCDR	Mineral Conservation and Development Rules, India
MDAC	Mineral Development Advisory Committee
MEG	Metals Economic Group
MENIM	Ministry of Energy and Mines, Peru
MET	Mineral Extraction Tax
MENR	Ministry of Energy and Natural Resources, Turkey
MID	Ministry of Investment and Development, Kazakhstan
MIPL	Mining Investment Promotion Law, Peru
MMD	Ministry of Mineral development
MME	Ministry of Mines and Energy
MMDR Act	Mines and Minerals (Development and Regulation) Act, India
MPRDA	Mineral and Petroleum Resources Development Act, South Africa
NAFTA	North American Free Trade Agreement
NDPs	National Development Plans
NMF	New Mining Framework
NMP	National Mineral Policy
NRC	National Resource Charter

OECD	Organization for Economic Cooperation and Development
OGDCL	Oil and Gas Development Company Limited
PARCO	Pak Arab Refinery Company Limited
PCU	PakMining Cadastral Unit
PDAC	Prospectors & Developers Association of Canada
PMDC	Pakistan Mineral Development Corporation (Pvt) Limited
PPI	Policy Potential Index
PPL	Pakistan Petroleum Limited
PRI	Principles for Responsible Investment
PSOCL	Pakistan State Oil Company Limited
RCD	Regional Cooperation for Development
RMD	Responsible Mineral Development
SBI	Sustainable Budget Index
SD	Standard Deviation
SEZ	Special Economic Zone
SH	Stakeholders
SML	Saindak Metal Limited
SMT	Special Mining Tax

SNGPL	Sui Northern Gas Pipeline Limited
S/No.	Serial Number
SSGCL	Sui Southern Gas Company Limited
UNDRIP	United Nations Declaration on the Rights of Indigenous People
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USGS	United States Geological Survey
WEF	World Economic Forum
WWF-SA	The World Wide Fund for Nature South Africa

CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE PROBLEM

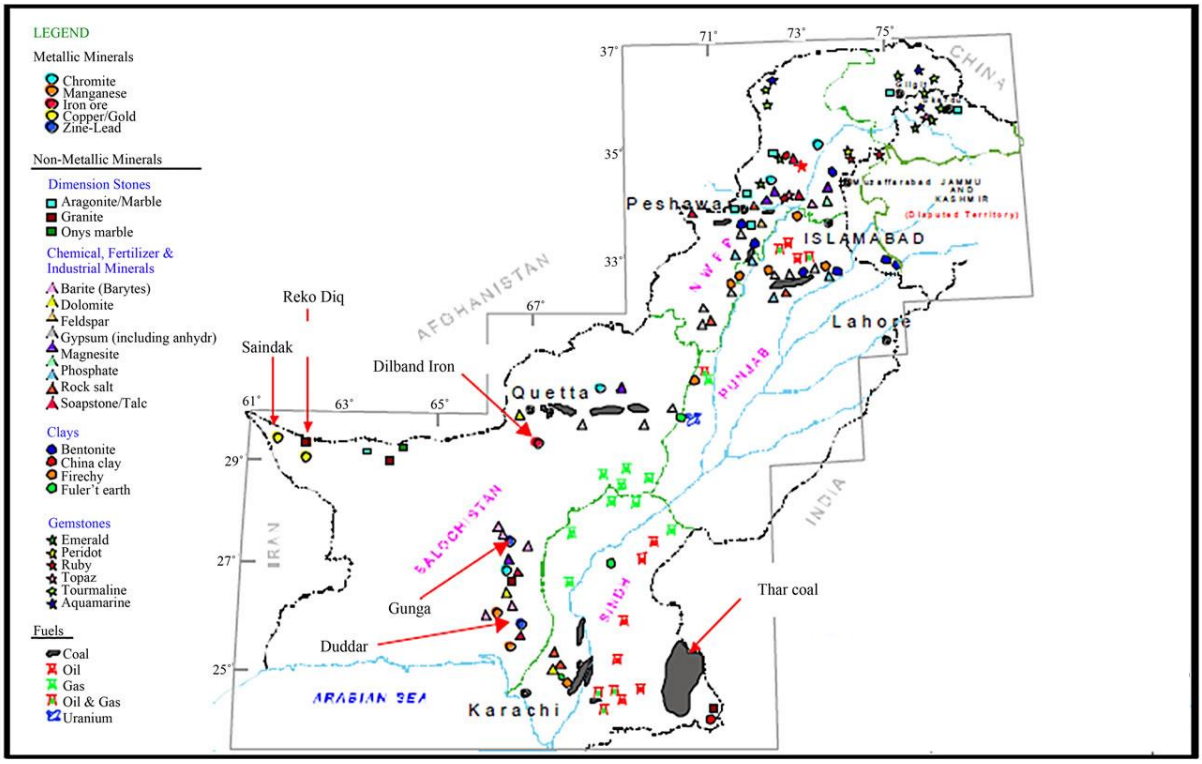
1.1 Introduction

Mineral policy does not evolve in a vacuum, nor is it a matter of mere theoretical assumptions. It is a process of answering the terms of human behaviour, historically evolving powers, economic policies, varying communal attitudes towards mineral resources and shifting orientation of the legal system. The legal regime is an important aspect of a mining policy as it provides a bond between the investor and the state. Shaping domestic legal regimes are influenced by international circumstances and trends in the international market.

There are three factors which contribute to this activity. First, mining is a global activity; second, mining has a strategic importance in the country's economic development and prosperity; and third, mining is an activity of extracting non-renewable resources. Recognition of rights of self-determination, accelerated by the human rights regimes after the Second World War, and the principle of permanent sovereignty over natural resources, had a permanent impact on the legal framework evolved over a period of time. It also affects the local communities hence, international human rights and environmental protection organizations have a persuasive impact on the development and implementation of mineral policies and legal framework.

Mineral resources are gifts of nature to the countries where they are found. Almost every mineral-rich country depends largely on exports of its mineral resources, earning a major portion of their foreign exchange from these exports. Pakistan is gifted with significant mineral resources and is emerging as a promising area for exploration of mineral deposits. Pakistan has great potential in metallic minerals like copper, gold, silver, platinum, chromites, iron, lead and zinc. A total of about 52 minerals are mined in Pakistan, but on a relatively small scale. Considerable resources of coal (186 billion tonnes), copper (6000

million tonnes), gold (1656 million tonnes), silver (618 million tonnes), lead-zinc (23.72 million tonnes), manganese (.597 million tonnes), chromites (2.527 million tonnes), iron ore (1400 million tonnes) and precious and semiprecious stones have been identified in different parts of the country (Ministry of Petroleum & Natural Resources Government of Pakistan, 2013). Figure 1.1 shows the Mineral Occurrence Map of Pakistan.



Source: Geological survey of Pakistan, 2013

Figure 1.1 Mineral Occurrence Map of Pakistan.

The presence of significant mineral deposits in Pakistan is capable of boosting the fragile economy of the country. However, after several decades, the expected benefits are still awaited. The approach of the state towards the development of mineral sector raises serious questions on how the presence of so much of mineral wealth could be converted into benefit. Provided that proper direction is set, the sector has the potential to fulfil the national goals and ambitions. However, no determined effort has ever been made to implement the policies and develop infrastructures, which are important for the sector to flourish. Policy is the vision

and objective of a nation to move forward. Mineral policy defines the way a nation follows in order to extract maximum benefits from its mineral resources.

GDP contribution to the overall economy is a direct indicator of success of the mineral sector in any country. Unfortunately, in spite of the fact that Pakistan has large deposits of mineral resources and has formulated two mineral policies in the past, the sector's contribution to national GDP remains small (less than one percent) (Ministry of Petroleum & Natural Resources, Government of Pakistan, 2013). This contribution is insignificant given the presence of large concentrations of mineral deposits and industrial minerals. There is a need to drastically increase this percentage towards 3% in the next ten years and growing it to 5% in twenty years' time. This percentage is attainable provided a proper direction is set so that the sector can contribute to the overall socioeconomic growth of the country.

Mineral policy formulation is a multifaceted and dynamic process, which requires flexible and transparent decision-making that embraces a diversity of knowledge and values. In 1995, the government formulated and launched the National Mineral Policy (Government of Pakistan, Ministry of Petroleum and Natural Resources, 1995) with the claim of broad-based stakeholder's consultation process. One of the aims of the policy was to create a favourable environment for investment in the mining sector which would subsequently attract local and foreign direct investments (FDIs). Although many paybacks were claimed for participation, disappointment grew amongst communities and stakeholders who felt let down when these claims were not realized. The revised national mineral policy of 2012 (Government of Pakistan, Ministry of Petroleum and Natural Resources, 2012) was promulgated in an effort to correct mistakes made in the NMP-1 and it mainly focused on the following areas:

- Enhance coordination between state and provincial institutions;
- Work towards sustainable development;
- An increased contribution to GDP from the mining sector;

- Promote a competitive environment for international investors and partnership; and
- Encouragement of small scale local mining.

However, after implementation of the national mineral policy-2, it was revealed that community engagement, which was the key factor for the failure of NMP-1, was not given any importance. Let alone this factor's given importance, it was not even mentioned in the new document. Pakistan had so far two mineral policies and many diverse ways for operation of the mineral industry, but there seems to be no positive effect of these changes on the overall stability of the sector and its subsequent effect on the overall economy of the country.

1.2 Why this Study?

The role of a sound mineral policy in national strategic planning is gaining importance and government policy makers are exploring new ways to improve their planning processes (Bruyninckx, 2004). As introduced earlier: Pakistan is rich in mineral resources, offering great potential for economic development. The country's more than 803,940 square has varied geological potential for metallic and non-metallic mineral deposits. At present, out of 92 known minerals in the country, 52 are being mined on a small scale. The major production is of coal, rock salt and other industrial and construction minerals. Yet the current contribution of minerals sector to the GDP is less than one percent. If one compares this GDP contribution with 16% for Chile (Ministerio de Mineria, 2014), 9.6% for Australia (Australian Bureau of Statistics, 2014), 8.1% for Canada (Statistics Canada, 2014), and 4.7% for USA (National Mining Association, 2014), it is evident that concrete steps are needed to increase this contribution to a level that is aligned with its mineral potential.

1.2.1 Relationship of mineral development and growth

The relationship between mineral development and economic growth has been comprehensively studied. Many writers believed that dependence on natural resources has adverse effects on the overall economic growth (Wright and Czelusta, 2003). There is also

significant body of literature on the theory of resource curse. It was believed that the economic growth of most of the resource-rich countries remained stagnant in the early twentieth century (Surowiecki, 2001). However, a counter argument to this theory is the example of United States.

Historical studies show that successful resource-based development is not primarily a function of geological endowment. The United States was a leading mineral-based economy from 1890 to 1910, and emerged as a leader in the world political scenario. By 1913 the United States was the world's dominant producer of almost every major industrial mineral. This growth was not merely because US was rich in mineral resources, but it was due to the policies which were adopted during that time. Mineral development in that era is attributed to large-scale investment in exploration, transportation, geological knowledge, and the refined technologies of extraction, refining, and utilization (Wright and Czelusta, 2003). Hence we can easily say that mineral resources played a very important role in the development of United States into a world power and subsequently a leader. American industrialization was not only due to its geological potential, but also closely attributed to the fact that it developed policies for growth which attracted large-scale investment in exploration, transportation, geological knowledge and technologies. Many other countries of the world in that era were richer in mineral endowment but could not take the lead in mining due to the fact that they had no sound policy.

For many years, the mineral/mining sector has been a positive core-contributor to the development of mining countries' economies. Recent studies amplify that countries like the USA, Australia, Canada, Chile, South Africa, Ghana and many others have earned major contribution to their GDP from their mineral sectors (Ozah et al., 2011). Table 1.1 illustrates the importance of mining sector in the development of the national economy.

Table 1.1 Mining sector contribution to the country's economy - 2013.

S/No.	Country	Contribution to GDP		Impact on national economy	
		US$ billion	Percentage	Employment	Percentage in export earnings
1	Australia	121	9.6	787,080	54
2	USA	232	4.7	2,111,530	9.4
3	Canada	52.6	8.1	418,000	20.4
4	South Africa	26.5	4.5	500,000	23
5	Chile	35	16	60,000	59.4
6	Botswana	59	34.2	13,000	75.6
7	Ghana	17	7	500,000	37

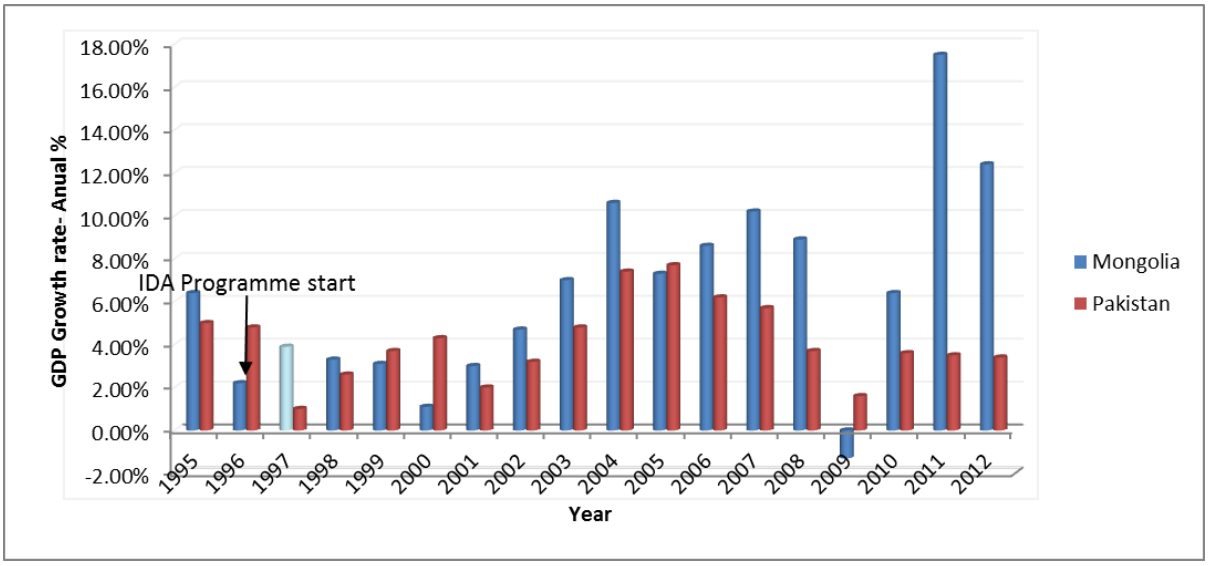
Sources:
Australian mining statistics
National mining association USA
Statistics Canada
The Canadian Economy at a Glance (Updated April 2014)
Statistics South Africa
Ministry of mining Chile
Ministry of Minerals, Energy and Water Resources, Annual statistics
Minerals commission of Ghana

1.2.2. **Modern mining legislation vis-à-vis GDP growth**

A global review of countries which implemented modern mining legislation and techniques showed a positive trend of GDP growth and economic prosperity. The World Bank started a reform program in 1988 to support 41 mining projects in 24 countries (World Bank, 2013). A review of these 24 countries revealed that due to these reforms, substantial increase was observed in the foreign investments which subsequently resulted in GDP growth of these countries. These Countries adopted modern mining legislation and provided an encouraging environment that attracted private sector investment in mining exploration and production (International Development Association, 2013). This, in turn, contributed to increased tax revenues, export earnings, employment opportunities, infrastructure development especially in rural areas, and transfer of technology to the host countries. The best example out of these 24 countries is Mongolia, whose mining reforms have transformed the country into one of world's fastest growing economies.

Mongolia is endowed with significant mineral resources, especially gold, copper, coal, uranium, and oil. In 1997, through the International Development Association (IDA), the

World Bank started its reform program for the mineral sector of Mongolia. The mineral sector adopted mining laws and regulations that encouraged increased mineral exploration and exploitation. Since the start of the twenty-first century, the mining sector has been a key driver of the country's GDP growth, averaging 7.8 percent per year (Mineral Resource Authority of Mongolia, 2013) (Figure 1.2). In 2013, Mongolia's total mineral exports increased to US$ 3.065 billion, from US$ 267 million in 2000 (LLC, 2014). While the mining sector accounted for 8.5 percent of GDP in 2000, it increased to more than 25 percent of GDP in 2013 (Mineral Resource Authority of Mongolia, 2013). The IDA supported institution-strengthening of Mongolia's mining sector, particularly regulatory capacity with respect to the Mining Cadastre and effective environmental and social controls. Figure 1.2 shows the complete turnaround of the Mongolia's economy.



Source: National Statistics Office of Mongolia
http://en.nso.mn/stat_main

Figure 1.2 Mongolian GDP growth rates (annual %) from the time of start of IDA support as comparative to Pakistan in the same period.

1.2.3 **Mineral development and the Mining Cadastre System**

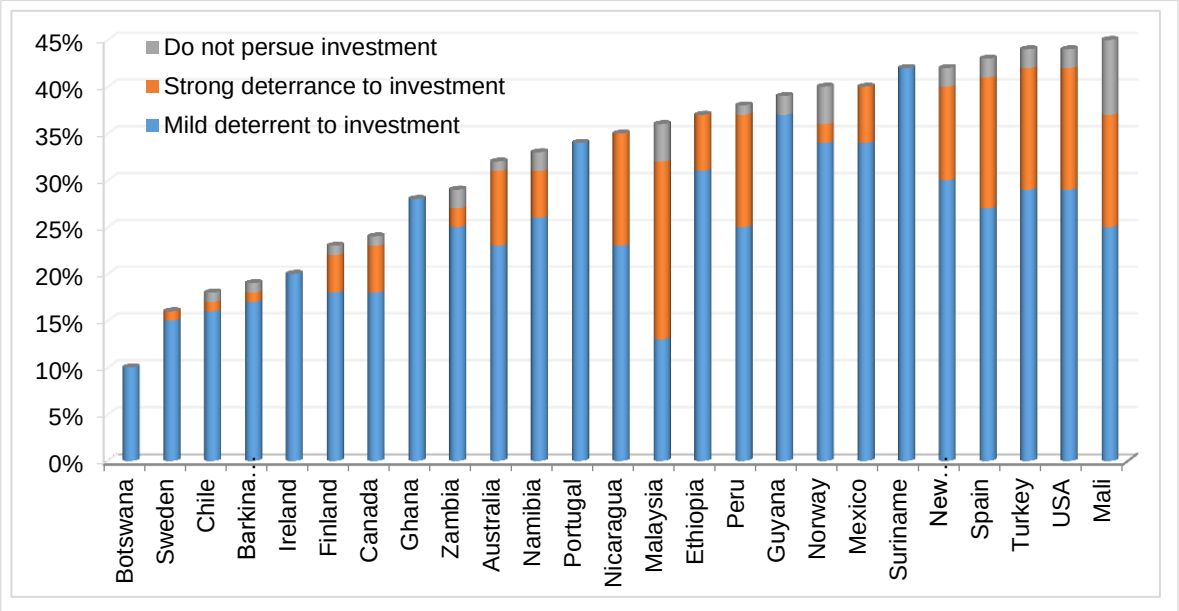
Security of tenure is one of the main concerns of investors when they enter into a mining venture. From an investor's point of view, mining laws should not only guarantee security of

tenure, but also provide a fair, transparent, decisive and efficient administrative environment for operations of mega projects. Reducing human inputs by incorporating automated process should increase fairness and transparency of the regulatory system. A Mining Cadastre System effectively enforces the mining laws and regulation by a system consisting of checks, balances and record keeping. Hence, it is an essential part of modern mining laws and regulations. It also provides an effective tool for data mining of the sector. Some of the advantages that a Mining Cadastre provides to both government and the investors are:-

- Enhanced government's regulatory capacity and help to implement a transparent mineral licensing system;
- Strengthened investor's property rights and security of tenure within the mining sector;
- Management of mineral development life cycle for both the state and investor;
- Management of data which can be used by the officials to formulate policy-making according to a particular trend, thereby contributing to the overall efficiency of the mineral sector of the country; and
- Provision of a link between the state and investors' financial management systems, and hence, reduce time to generate different types of reports, financial assessments, and joint legal obligations.

Foreign direct investments in the mining sector are closely related to the regulatory uncertainties in a particular country. A Mining Cadastre System reduces uncertainties and provides confidence to the investors. It is therefore critical to have an efficient and up-to-date Mining Cadastre System to gain the confidence of foreign and local investors. The global survey for mining systems and regulatory uncertainties across the world, conducted by the Fraser institute, ranked Botswana as the safest country to do mining business in (Wilson, McMahon and Cervantes, 2013). Botswana's mild deterrence to investment environment is

due to strong mining regulations which are enforced through implementation of a Mining Cadastre System (Figure 1.3).



Source: Fraser Institute, 2013

Figure 1.3 Fraser Institute's regularity risk assessment based on the survey of leading mining and exploration companies 2013-14.

1.3 **Problem Statement**

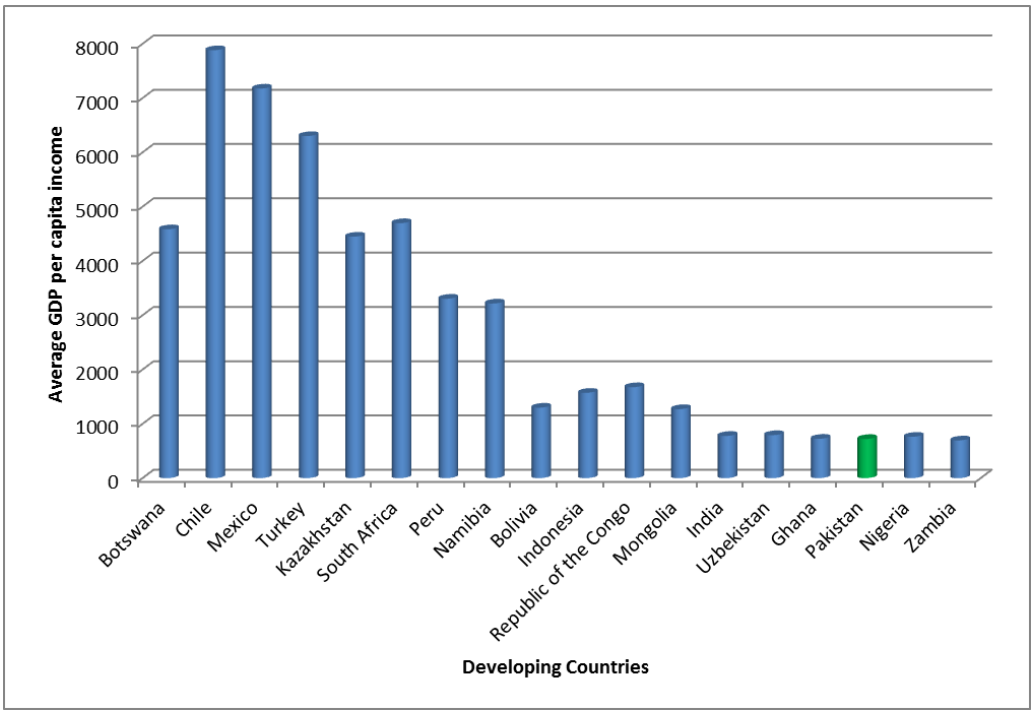
Despite the presence of large mineral deposits and two successive mineral policies of 1995 & 2012, Pakistan has been unable to get the required economic boost like the other developing mineral-based economies of the world. This fact is evident from Figure 1.4. There is a reasonably strong positive correlation between developing countries with good mineral policy frameworks and high GDP-per-capita incomes. Ghana and Zambia are the only countries having a negative correlation (Table 1.2). Figure 1.5 illustrates GDP growth rate of Pakistan from 1995 to 2013, which suggests that it has not done well in the economic sector despite so much of resources. There was some growth in 2004 and 2005 but that is mainly attributed to the coalition support-fund in war on terror. The lack of foreign direct investment (FDI's) in the mineral sector is also attributed to the absence of a user-friendly and comprehensive Mining Cadastre System which is the corner stone of implementing a secure mineral right

system. The present situation calls for a concerted effort to formulate a strategic-fit mineral policy framework keeping in view Pakistan's fragile political, socio economic and security environment. This situation also calls for a detailed implementation plan to attract local and foreign investments.

Table 1.2 Correlation between Fraser Institute and GDP per capita income of selected developing leading mining countries.

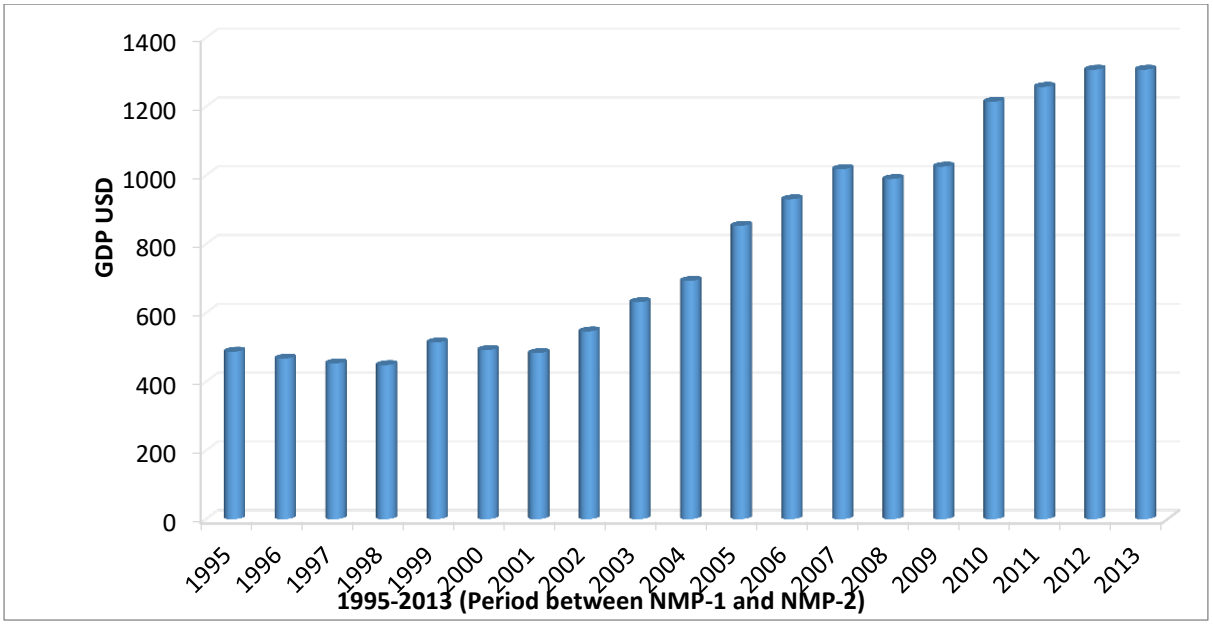
Serial	Country	Fraser Institute Survey ranking (Policy mineral potential assuming no regulation in place and assuming industry best practices)	GDP per capita income (US$)
1	Chile	8	7881
2	Mexico	18	7175
3	Botswana	8	4584
4	Peru	35	3304
6	South Africa	50	4697
6	Ghana	47	726
7	Zambia	43	695
8	Pakistan	Not included in the survey	721

Source: Fraser Institute Survey, 2014
World Bank



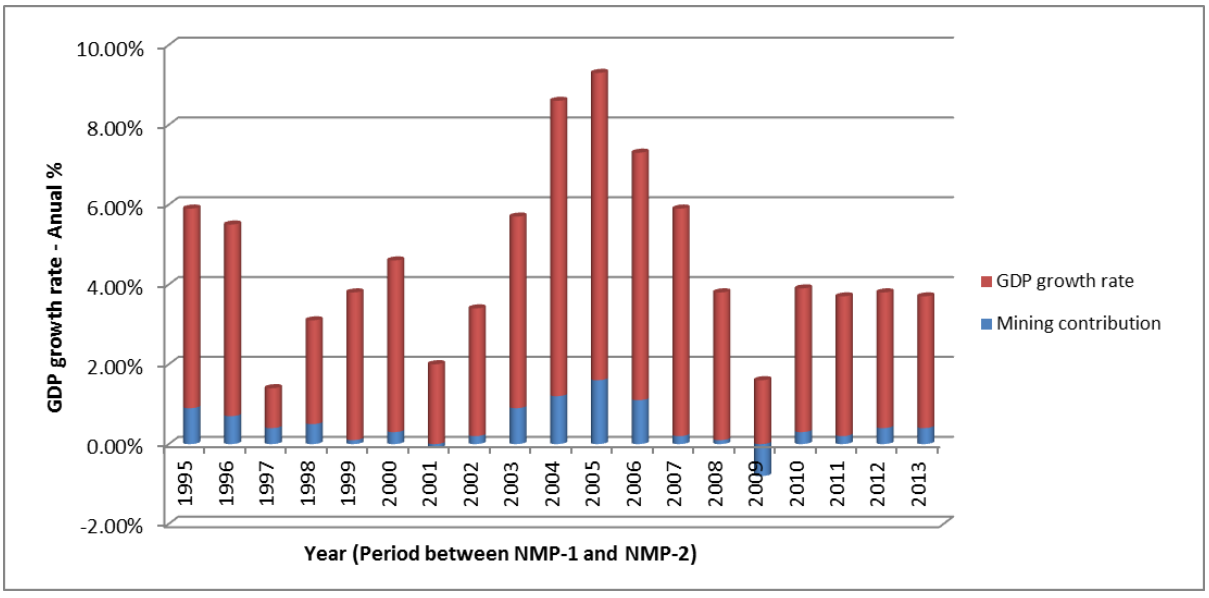
Source: World Bank

Figure 1.4 Average GDP per capita income of developing countries with sound mineral policy framework from 1995- 2013.



Source: Federal Bureau of Statistics, Pakistan
World Bank

Figure 1.5 Pakistan yearly GDP growth rates with mining contribution between two national mineral policies.



Source: Federal Bureau of Statistics, Pakistan

Figure 1.6 Yearly GDP growth rate and mining contribution for Pakistan from 1995- 2013.

1.4 Objectives of the Research

The objectives of the research are:-

- The first objective is to investigate the mineral policy of Pakistan against leading developing minerals-based economies and to formulate a strategic-fit mineral policy framework for Pakistan, keeping in view its fragile political, socio-economic and security environment;
- To examine what factors determine good security of tenure;
- To examine the role of various stakeholders influencing decision-making and explaining how communities can benefit from mineral development; and
- To formulate an implementation plan for mineral policy highlighting the role of the Mining Cadastre System for security of tenure.

1.5 Fundamental Question

What will constitute a strategic-fit mineral policy for Pakistan that will underpin long term prosperity?

1.6 Follow-up Research Questions

- What should be the criteria to select countries for analysis of leading practices?
- How to formulate a mineral policy which fits Pakistan's socio- economic environment and contributes to the national economy and social development?
- What is the current mineral policy and what process was adopted in formulating it?
- Who are the stakeholders and what is the importance of a participatory approach in mineral policy development?
- How can a mineral database and Mining Cadastre System help to attract local and foreign investment and what are the design parameters of such a Mining Cadastre System?

1.7 Methodology

- A qualitative and limited quantitative research analysis approach will be applied for this study;
- A comprehensive literature review will be carried out for mineral policy development in developing countries;
- Criteria will be formulated to select developing countries like Pakistan, who despite their political, socioeconomic and security problems have successfully attracted foreign investments;
- A comparative analysis of mineral policy development of selected leading developing countries will be carried out to extract the fundamental corner-stone and other criteria of their success;
- Political, social, economic and security analysis of Pakistan's mineral-rich areas to identify the hidden barriers in sustainable mineral development and poverty alleviation in these areas. The strategic role of stakeholders and community rights in the policy development will also be studied. The implementation, after review and adjustments in the framework, will be analysed and incorporated; and
- A strategic fit for mineral policy development framework will be formulated.

1.8 Implementation Plan

- An implementation plan will be devised, incorporating GIS based Mining Cadastre System;
- A theoretical framework for Mining Cadastre System will be developed for secure mineral rights system to attract local and foreign investments;
- A design-schema for a geodatabase in GIS environment will be presented, incorporating overlay analysis to combine country base map and shape files for location of minerals and their extents; and

- A design-schema for a rational database will be presented: for storing licensing, ownership, areal extents, value of mineral rights, validation of mineral rights in geographic location, management of mineral resource and security aspects.

1.9 Research Design

The two-dimensional structure of the proposed work necessitates a research design framework for logical progress of the study. The conceptual framework of the study is explained in the Figure 1.7 and 1.8.

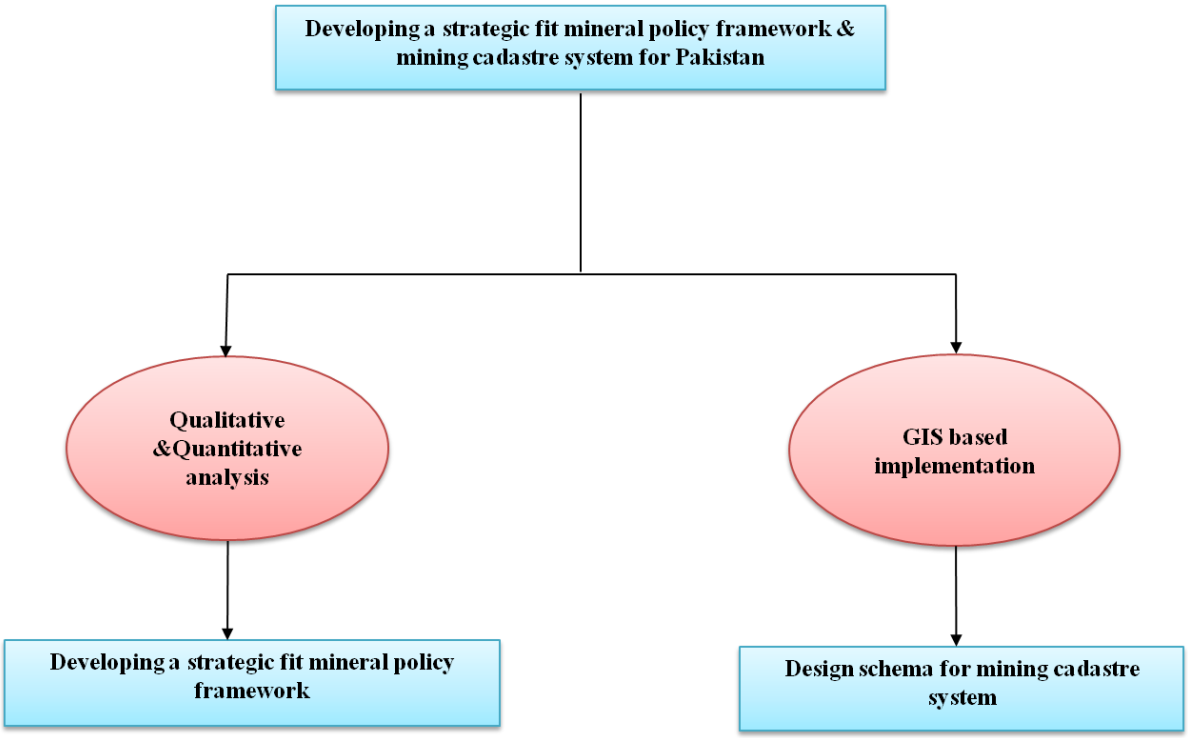


Figure 1.7 Overall conceptual design.

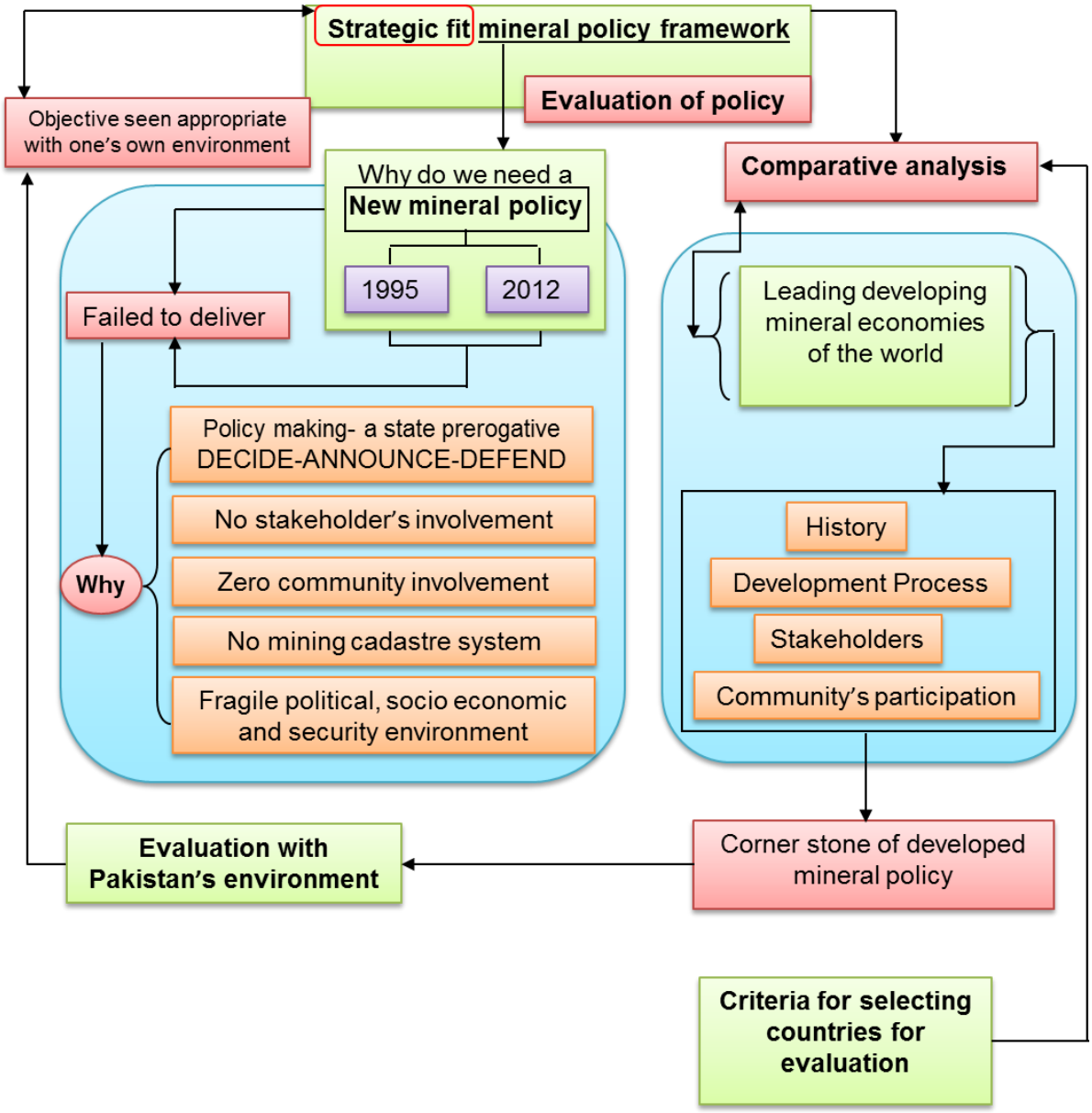


Figure 1.8 Development process of a strategic fit mineral policy framework.

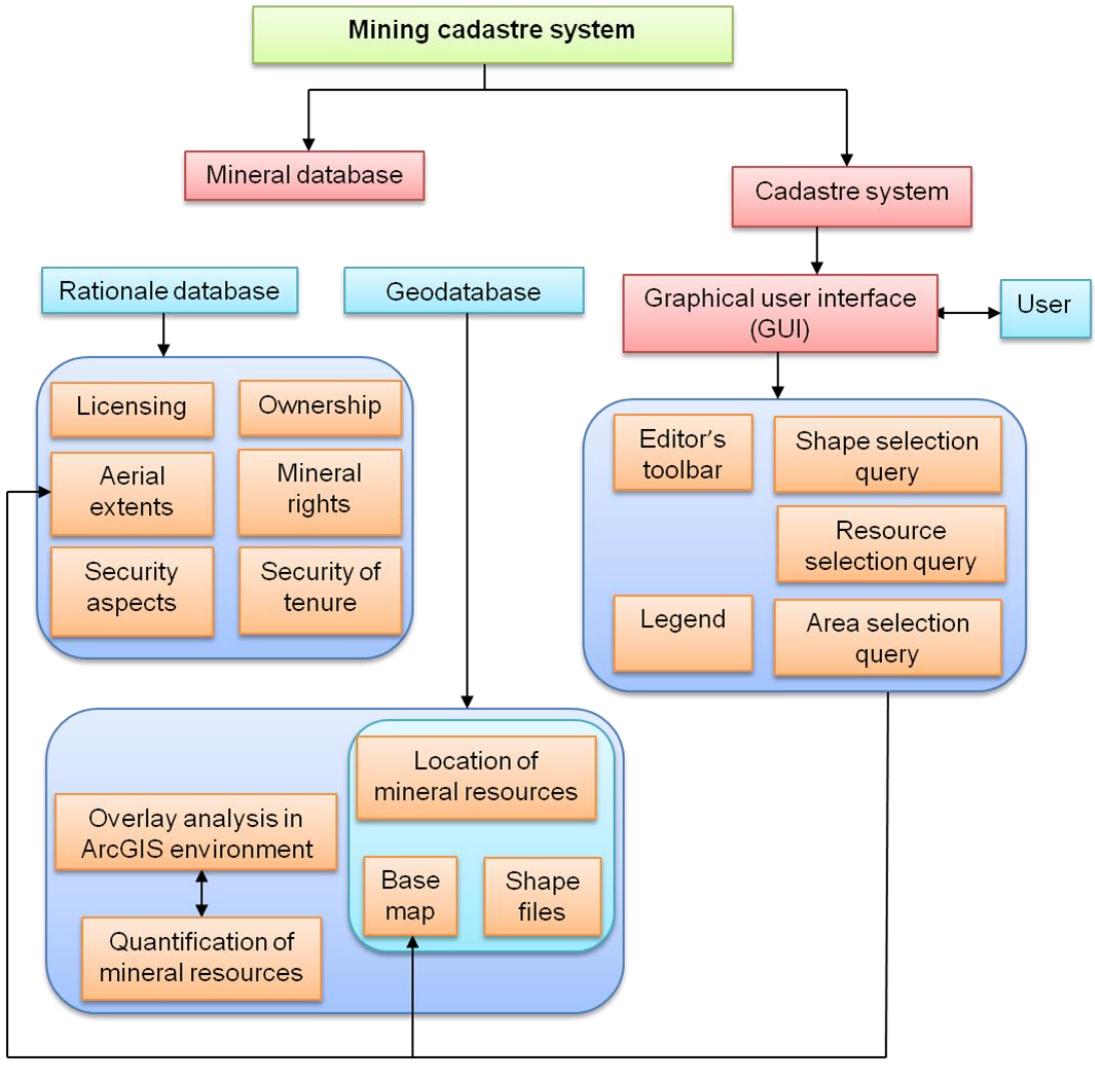


Figure 1.9 Design close loop GIS based schema for Mining Cadastre System.

1.10 Structure of Thesis

This thesis has been organized into ten chapters. Summary of the chapters are given in the following paragraphs.

Chapter one: Introduction and background of the problem

Chapter one includes the introduction of mineral policy development process. It illustrates the importance of mineral resources and their impacts on national economies of mineral-rich countries. The chapter discusses Pakistan's present mineral resources and the evaluation of its two mineral policies. It also discusses economic growth vis-à-vis mineral development,

modern mining legislation and Mining Cadastre System. It illustrates the problem statement, objectives, research questions and the methodology to be followed for the research.

Chapter two: Responsible mineral development

This chapter highlights the value of minerals development for economic growth in minerals-based economies. Mineral resources have the potential to transform the local society and community. This chapter highlights the parameters of translating mineral value to economic and social value by avoiding conflict and Dutch Disease. It also discusses the linkage between sustainable and responsible mineral development.

Chapter three: Pakistan - an Overview

Chapter three presents Pakistan's geostrategic location and its importance as a future energy corridor. It illustrates the geological divisions and the mineralization of the country. It further provides an overview of the economy of Pakistan and its national economic objectives. The chapter provides a detailed account of World Bank statistics, political, socioeconomic and security environment of Pakistan. Chapter three also describes the present mineral policy development framework, legal framework, mineral asset knowledge base and administration of rights.

Chapter four: Selection of developing countries comparable to Pakistan

Chapter four describes the methodology to formulate selection criteria on which developing countries are selected. The chapter depicts the logic for selecting the factors. Five developing countries are selected to compare with Pakistan's current mineral development framework.

Chapter five: Policy analysis of selected countries

This chapter examines the history of policy development of selected developing countries. It also discusses the different stages of development of a successful mineral policy. The chapter

also gives a detailed account of the implementation plan of mineral policy for each selected country.

Chapter six: Role of stakeholders in the policy development process

Chapter six looks at the role, relevance and expectations of stakeholders and communities in mineral development. It also identifies the major stakeholders in Pakistan. Most of the mineral resources of Pakistan are located in remote areas. It is important to have in-depth study of these communities and the criteria for indigenous people to participate in the development of the sector.

Chapter seven: Policy Considerations for the Mineral Sector of Pakistan: A Gap Analysis

Chapter seven attempts to develop a strategic-fit for mineral policy framework for Pakistan, a framework which best suits Pakistan's environment. The chapter furthermore analyses the gaps between Pakistan's current mineral policy and leading developing-countries' policies.

Chapter eight: Mineral development framework for Pakistan

This chapter develops a mineral development framework for Pakistan. It also attempts to formulate structure for legal framework in line with international best practices. It also suggests measures to attract foreign direct investments.

Chapter nine: Implementation

Chapter nine presents the implementation plan for the newly developed policy framework. It also presents the design schema for a Mining Cadastre System for secure mineral rights system to attract local and foreign investments.

Chapter ten: Conclusion and recommendations

Chapter ten draws conclusions from the study. Based on these, recommendations are made to implement the newly developed policy framework.

1.11 Significance of the Study

This research is aimed at formulating a framework for mineral policy development for Pakistan, incorporating the experience of leading developing mineral economies. These leading policy development models will be critically evaluated against Pakistan's environment for commonalities and differences through gap analysis, and a new strategic fit for a policy framework will be devised for Pakistan. The research is also aimed at defining the role of a GIS based Mining Cadastre System for mineral development of Pakistan. The development process of Mining Cadastre necessitates the development of a new central mineral geodatabase - which at present is not available in a compact form in Pakistan.

1.12 Conclusion

This chapter provides the introduction of mineral policy development process. It illustrates the importance of mineral resources and their impact on the national economies of mineral-rich countries. The chapter further discusses Pakistan's present mineral resources together with an overview of the two mineral policies. It also discusses economic growth vis-à-vis mineral development, modern mining legislation and Mining Cadastre System. It illustrates the problem statement, objectives, research questions and the methodology to be followed for the research.

The next chapter will define responsible mineral development and describe why it is necessary for corporations and governments to adopt it. The basic principle behind the responsible mining framework will be discussed. The chapter will further describe the impacts of irresponsible mining on our environment and social life of local community.

Examples from industry will be discussed for changing corporate behaviour in response to community campaign against irresponsible mining practices. The chapter will then give a detailed account of different frameworks formulated by international organisations for responsible mining practices and sustainable business.

CHAPTER TWO

RESPONSIBLE MINERAL DEVELOPMENT

2.1 Introduction

Mineral resources are key for economic growth and have the potential to transform economies and societies. The extent to which these transformations take place varies depending upon the method of their use. Countries with mineral resources face both opportunity and challenge. When used responsibly, these resources can create greater prosperity for current and future generations; used poorly, they can cause economic instability, social conflict, and environmental damage. Developing countries with mineral wealth must try to gain maximum benefit from their natural resources. Policy makers must not plan to extract these resources hurriedly for gaining short-term advantage. These natural resources are assets of a country and likewise should be managed responsibly and not spent unwisely.

The importance of managing the mineral resources in a responsible way for the survival of societies is not new. Even as early as 250 – 900 A.D, the Yucatec Maya society managed their natural resources for benefit. They were well aware of the importance of natural resources and were successfully managing them for their societal growth (Saylor.org, 2014). The mineral resource policy should never be planned in isolation, as it has a direct relation to the development policy of the country. Mineral resources are valuable assets of a country and people have the public right on its efficient use. The best solution for fulfilling this public right is to re-invest its revenue on educational programs, health care and development of infrastructure such as electricity, water and sewage etc. The role of responsible mineral development in national strategic planning is gaining importance and government policy makers are exploring new ways to improve their planning processes. It is easy for the countries to exhaust their natural resources by over-use of these resources. Policy makers can

overlook the sustainability aspect of the natural assets and as a result, design policies to get short-term gains without long-term benefit.

A responsible approach by policymakers requires them to visualize the country's natural resources as assets and develop policies to gain the greatest economic benefits from these assets. The extraction of mineral resources has diverse implications and consequences. These implications equally affect the environment, communities, governments, companies and even countries and regions where mining activities are taking place. For developing countries, mineral development is an important engine for economic growth and it contributes to their poverty reduction and social uplift. However, if managed irresponsibly, it may generate social conflicts as a result of negative impacts on biodiversity, economy and local communities (The EITI International Secretariat, 2013).

2.2 What is Responsible Mineral Development (RMD)?

2.2.1 **Definition.** There are two phrases that are important in the context of this discussion, "Responsible Mineral Development and Sustainable Mineral Development". There is a need to either differentiate between these two or establish whether they are the same thing. Table 2.1 gives a comparison of the definitions of both.

Table 2.1 Definitions of sustainable mineral development and responsible mineral development.

S/No	Sustainable Mineral Development	Responsible Mineral development
1.	Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their needs.	Responsible Mining is mining that should: • Respect the human rights and aspirations of affected communities; • Provide safe, healthy and respectful workplaces; • Avoid or minimize harm to the environment; and, • Leave positive legacies. [1]
2.	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.	Responsible development is a process which actively considers environmental, social and governance (ESG) issues within investment

[1] Standard for Responsible Mining Draft by the Initiative for Responsible Mining Assurance (IRMA), 2014.

		decision-making and ownership practices.

Sources:
United Nations, 1987
International institute for environment and Development, 2012
United Nations Environment Programme (UNEP), 2012

When analysing the definitions in Table 2.1, it is deducted that sustainable development is more inclined towards the fear of over-use of resources by present generations and not leaving benefit or opportunity-to-benefit for future generations. On the other hand, responsible mineral development is more concerned with collective responsibility during extraction of mineral resources, where such responsibility includes environment, human rights and social values. Another deduction is that RMD primarily focuses on the extractive industry only, whereas sustainable mineral development focuses on the entire value chain and the development process. Hence, responsible mineral development is defined as, "extracting mineral resources in a way to achieve Socio-economic balance". Responsible mineral development actually contributes to sustainable development, which is only possible when economic benefits of mining outweigh social and environmental costs (Goodland, 2012).

2.2.2 **Responsible mineral development-The basic principle.** Basic principle behind the responsible mineral development is that mining should not harm the environment, people and social values. In 2005, the UN Secretary General tasked John Ruggie[2] to study and map patterns on human abuses by business across the world (Business-humanrights.org, 2014). In 2011, Ruggie prepared a framework for "Guiding Principles on Business and Human Rights" which was unanimously adopted by the UN Human Rights Commission (Unglobalcompact.org, 2014). In his report, Professor Ruggie argued that it is the prime duty of the corporations to respect the human rights and social issues originating from business (Hart and Coumans, n.d.).

[2] John Gerard Ruggie is a Professor in Human Rights and International Affairs at Harvard's Kennedy School of Government. In 2005, he was appointed as the UN Secretary-General's Special Representative for Business and Human Rights.

2.2.3 **Why responsible mineral development?** Two reasons are argued in this regard. First, mining activities have adverse effects on biodiversity and the environment. Biodiversity simply means to answer, "where to, or not to, mine". Biological diversity means "the diversification and variety of animal, plants and other living organisms / species in a particular area or region (biodiversity definition, 2008). Pollution is the subset of biodiversity as it is one of the major causes of biodiversity loss. Mining is spotted as the most effecting activity among industrial pollution, urbanization and emissions of GHG's (Nilsson and Randhem, 2008). We should merge biodiversity in all phases of mining cycle to reduce the impacts because biodiversity is not a constraint for the mining activity.

Second, companies can get more and quick profit with responsible mining, and not following irresponsible mining practices which can ignite conflicts with surrounding communities and have severe environmental impacts. Extraction of mineral resources has both positive and negative impacts for local residents, governments, and environment. Local employment opportunities, economic boost and governmental revenues are some of the positive impacts of mining. However, because minerals are public assets, decisions about their extraction and exploitation should take place in a system of transparent and participatory approach. The government should make the discussion public so that it is subject to scrutiny by civil society. Problems will arise with imbalance of power between resourceful and knowledgeable mining companies and unprotected communities. The responsible mineral development structure will redress this imbalance and will allow the best course of action, which also addresses the concerns of most stakeholders.

2.3 Impacts of Mining

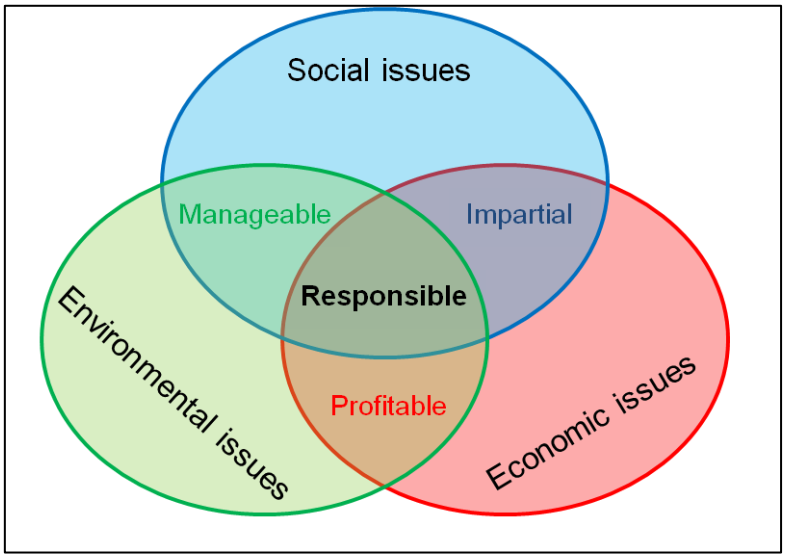
Mining has adverse effects on the environment and life, no-matter what method we use. Yet most, if not all, negative effects of mining are avoidable if companies work according to responsible mineral development standards developed by international organizations. The

negative impacts of mining can be grouped under environmental, social and economic issues. Environment is the most affected part of the mining operation, and environmental justice should be given top priority in the relationship between government and corporations. Environmental justice means benefits and burdens of development of environment must be equally shared by the government and corporations. The procedural dimension of environmental justice demands that the communities that are affected should be directly involved in the decision process. Also, to keep the environment safe from negative impacts of mining, responsible mining practices should be followed. Responsible development is a process which actively considers environmental, social and governance (ESG) issues within investment decision-making and ownership practices (UNEP Finance Initiative and the UN Global Compact, 2014). In a mining relationship, corporations are the leading entity which is affecting the environment and social values (KDIS, 2014). Before Ruggie's framework, international laws about environment, human rights and social values did not bind the corporations, despite the fact that 41 of 100 world's largest economies were based on corporation structure (Vitali, et al, 2011). Given that this immensely influence people's lives, a responsible legal framework for corporate accountability was required. In this regard the UN promulgated different international bindings that must now be followed by states and corporations alike for accountability. These include:-

- **Ruggie framework.** UN official human rights obligation that should be followed by corporations (Unglobalcompact.org, 2014). This was, in fact, the first global structure for corporate accountability.
- **Freeman's Stakeholders theory.** Through this theory, the managers were not only held responsible to the companies but also to the different stakeholders (i.e. suppliers, customers, employees, stakeholders and local communities).

- **Corporate Social Responsibility (CSR).** CSR refers to the voluntary initiative by companies with the declared aim of: respecting and promoting human rights and social welfare (Iisd.org, 2014).

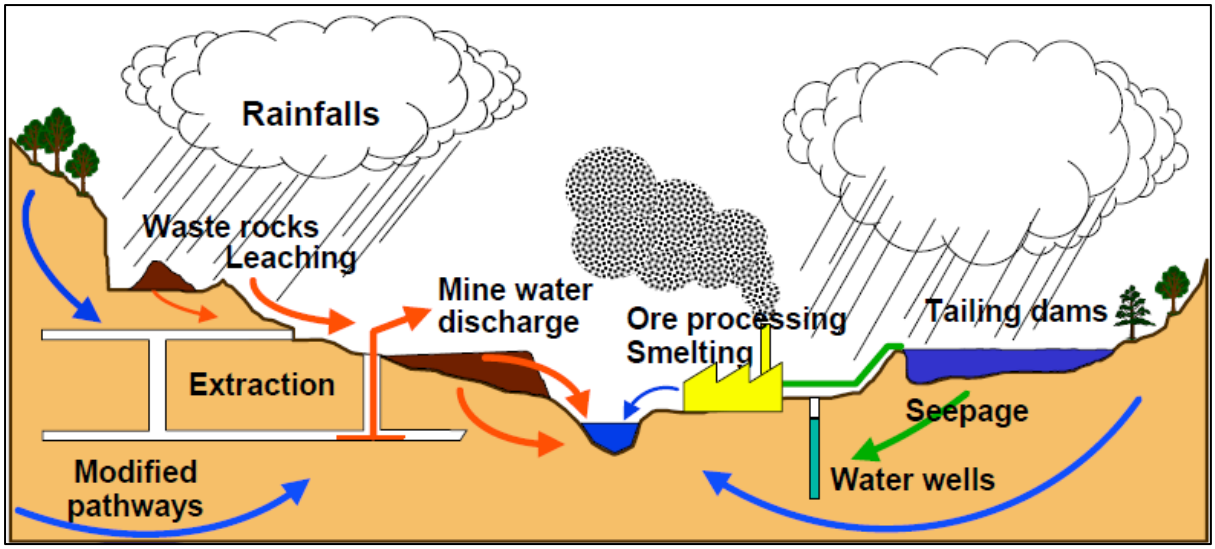
2.3.1 **Mining impacts and responsible mineral development**. Social, environmental and economic effects of mining should be manageable, profitable and impartial respectively in order for mining to be responsible (Figure 2.1).



Source: Updated from
World Economic Forum, 2014
Natural Resource Governance Institute, 2014
Eiti.org, 2014
Icmm.com, 2015

Figure 2.1 Key mining impacts and responsible mineral development.

2.3.2 **Controllable environmental damage.** There are at least three important environmental problems that arise as a result of mining. First, it changes the land use of the area, which imposes restriction on the further use of the land. Second, it changes the hydrological conditions of the land (surface, underground and downstream, Figure 2.2), and finally, it changes the geo-technical conditions of the rock and its balancing forces (Aswathanaryana, 2003).



Source: Younger and Wolkersdorfer, 2004

Figure 2.2 Mining and its impacts on ground and underground water.

These changes can vary from place to place and can cause various geo-environmental impacts which are:-

- Surface and groundwater contamination issues related to downstream users;
- Acid mine (rock) drainage and cyanide pollution;
- Airborne hazardous emissions (mercury, lead, and greenhouse gases);
- Noise pollution;
- Waste Management and problems related to sea-bed mining; and
- Erosion and subsidence of soil.

2.3.3 **Impartial and across-the-board development of affected Communities.** Mining has both immediate-area impacts, and it also affects the overall community surrounding the ore body. The local communities include native people, artisanal miners and mine workers. Marginalized people by ethnicity, race, gender or religion also need special attention. Sustainable and long-term economic benefits for local communities should be planned and implemented in consultation with members of local communities. Some of the problems arising from mining which are of concern to the local indigenous people are:-

- Absence of prior and informed consultation of local community about mining;
- Human displacement and resettlement as a result of mining;
- Lost access to clean water by local communities and downstream users;
- No consultation between local communities, corporations and government;
- Absence of a mutually agreed local-development-plan;
- Absence of gender- and labour-based rights recognition;
- Absence of voluntary resettlement and compensation plan;
- Non-recognition of the rights of small-scale and artisanal miners; and
- Security issues and human rights violations.

2.3.4 **Profitable economic outcome.** Mining remains the backbone of many developing economies of the world. A classic example is that of Ghana, where private sector-led development shifted the complete economic structure of Ghanaian economy[3] (Akabzaa T. and Darimani A., 2001). However, there are examples, more likely in developing countries, where the economic benefits of mineral developments are not evenly shared. For mining to be profitable, mineral economic growth should be across all industrial sectors, states and territories, regional areas and all sections of the community (Tourism Research Australia, 2013). Some of the negative impacts of mining on the economy are:-

- Dutch Disease: A mining boom can have a negative effect on the home-country's other industries, because increased inflow of foreign currency can appreciate the home-country's currency, making its other products less price-competitive on export markets;
- Importing workers. Companies sometimes prefer importing already-skilled labour, which deprives the local indigenous people, which can result in a social conflict;

[3] This implies orienting to export markets, more competition in the financial sector, more direct foreign investment in non-traditional sectors and a shift by Ghanaian enterprise from extensive to intensive growth.

- Unreliable job prediction (mining companies normally over-estimate job opportunities for local communities);
- Sometimes profit does not live up to the expectations;
- Government and companies benefit from mining development but agricultural community has to bear the passive cost;
- Relocation/ resettlement of host communities. This has negative effects for government as more spending is done to re-locate and re-establish the communities affected by mining; and
- Reclamation cost of degraded mining land for other uses.

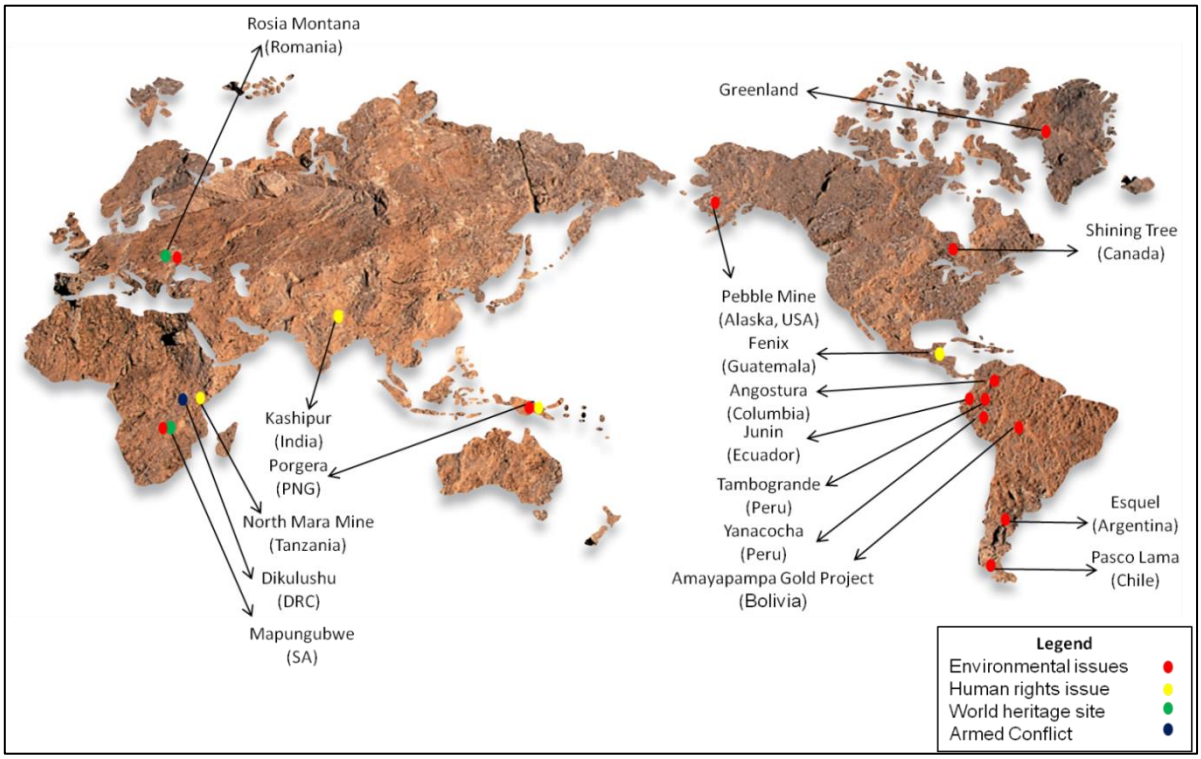
Some of the mining issues across the world are listed in Table 2.2. Figure 2.3 shows spatial distribution of mining conflicts according to their nature of conflict.

Table 2.2 Mining issues due to irresponsible mineral resource development.

S/No	Mine	Mining Company	Alleged Nature of issue
1	Tambogrande (Peru) , Copper and Gold mine	Manhattan Minerals (Canadian mining company)	Environmental pollution
2	Esquel (Argentina) Gold mine	Merdian (Canadian mining company)	Water contamination downstream of 7 Km open pit mine.
3	Dikulushu (DRC)	• Anvil Mining company DRC • Mawson West Limited (from 2010)	Armed conflict
4	Porgera (PNG)	• Porgera Joint Venture (PJV) • Barrick Gold (from 2006)	• Lack of compensation and infrastructure development • Dumping of toxic mine tailings directly into the river
5	Rosia Montana (Romania)	Gabriel Resources	• Heritage value of Roman mining • Cyanide spill (Baia Mare-2000)
6	Angostura (Columbia)	CVS Explorations, Galway Resources and Barracuda	Environmental / water contamination issue
7	Fenix (Guatemala)	Guatemalteca de Niquel (CGN) (Owned by HudBay Minerals from 2008-2011)	Human rights violation (Security personnel of Fenix mine beat and hacked Adolfo Ich Chaman with machetes before shooting him in the head at close range in an unprovoked attack)
8	Kashipur (India)	Joint venture (Aditya Birla Group and Canadian aluminium company, Alcan)	Human rights violation (killing of three unarmed protesters)
9	Junin (Ecuador)	Codelco	Environmental issue

10	Yanacocha (Peru)	Newmont Mining Corporation	Environmental (cyanide-water contamination and Mercury spill) and social issues
11	Shining Tree (Canada)	Creso Exploration Inc.	Environmental issue
12	Pasco Lama (Chile)	Barrick Gold	Environmental issue (Glacier depletion)
13	Amayapampa (Bolivia)	Vista GOLD Corp. Republic Gold Limited (Australia)	Environmental and socio-economic issue
14	Mapungubwe (SA)	Australian company coal of Africa (CoAL)	Environmental and socio-economic issue
15	Pebble Mine(Alaska USA)	Pebble Limited Partnership (PLP)	Environmental issue (risk to downstream fish stocks)
16	Greenland	Greenland Minerals and Energy Ltd	Environmental issue (Tailings disposal in the Taseq lake)
17	North Mara Mine (Tanzania)	African Barrick GOLD	Social and human rights issue

Source:
World Economic Forum, 2015
Oxfam International, 2016
Responsible Mineral Development (RMD) Consultants, 2014

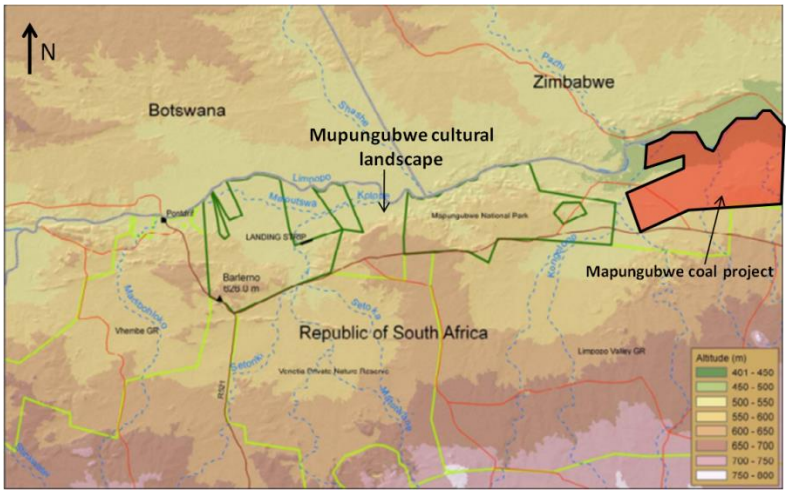


Source: Updated
Sdsg.org, 2014
Shapingsustainablemarkets.iied.org, 2014

Figure 2.3 Mining issues across the world and their nature of the conflict.

2.4 Case Study 1: Changing corporate behaviour-The Mapungubwe coal project

2.4.1 **The Project.** In 2008, an Australian company coal of Africa (CoAL), applied for a mining right on land less than 7 km to the North East of the boundaries of the Mapungubwe cultural landscape (Mapungubwe is South Africa's first gold state).



Source:
Centre for Applied Legal Studies, 2014

Figure 2.4 Mapungubwe project map in North East of Mapungubwe cultural landscape.

The proposed project presented a serious threat to the ground, underground and downstream water resources of the area. It also posed a threat to the heritage value of the site, which was declared a World heritage site in 2003 (Office of the Presidency, Republic of South Africa, 1999). The project area is part of a future energy corridor for South Africa. As the economy of Limpopo is still agricultural based, it is fully depended on the water resources of the area. As the project started, local residents formed the Mapungubwe Action Group (MAG) to safeguard the water resources of the area. The MAG soon contacted other NGO's and formed a coalition to raise environmental concerns regarding the project. The coalition composed of endangered wild life (EWT), The Association of Professional Architects of Southern Africa (ASAPA), Birdlife South Africa, Wilderness Foundation, The World Wide Fund for Nature

South Africa (WWF-SA) and the Peace Parks Foundation (The Centre for Applied Legal Studies, 2014).

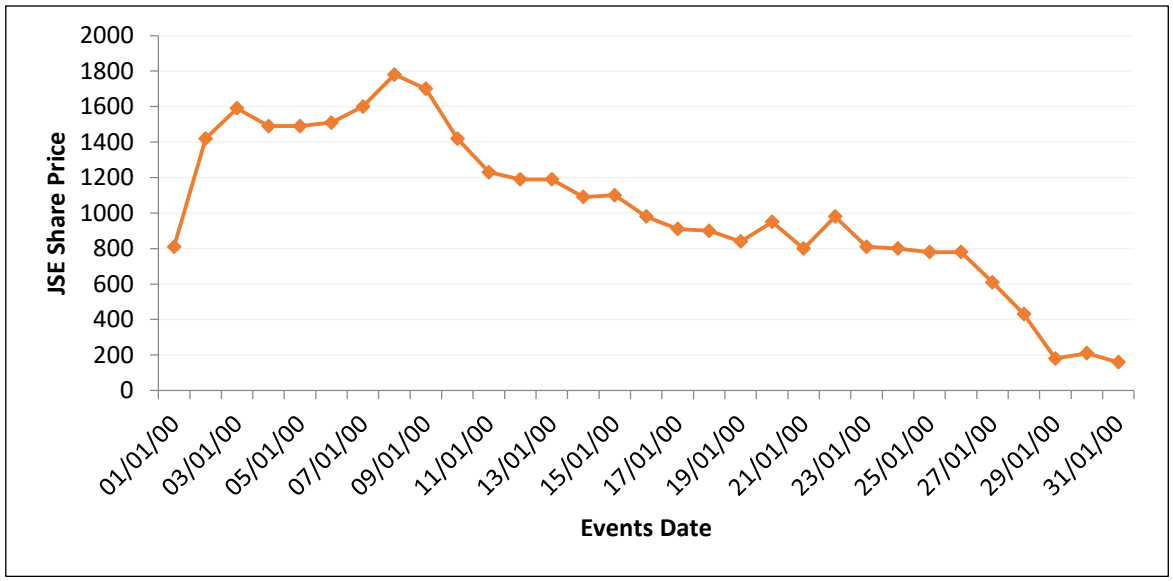
2.4.2 **The litigation.** During the campaign, the coalition was demanding to use the Stakeholders theory as a yard stick for the project. However, the company's intent of involvement of stakeholders was a fruitless exercise. Ideally, it should have been characterized by inclusivity, transparency, good faith and willingness to adjust plans in light of stakeholder's opinion. In the first stage, the conflict was easy to solve if the company had shown her willingness to adjust plans. Due to the failure to stop the project through dialogue, the coalition decided to go into the litigation. The objectives of the litigation were as following:-

- To stop development of the Mapungubwe coal Project. The mine, if developed, will fall into the UNESCO-recognised buffer zone (UNESCO, 2012). This will also highlight the international importance of the issue;
- To save the water resources of the area, as mining would likely place a significant strain on the limited water resources used by the agricultural sector, which potentially would lead to job losses; and
- To lodge an internal departmental appeal for irresponsible mining practices, followed by litigation in the High Court to compel CoAL to revisit its environmental practices.

Initially the coalition appealed to the Department of Mineral Resources (DMR) asking for review of the project specifications. However, this strategy did not work, as the Department of Mineral Resources (DMR) allegedly was in favour of the project. The coalition then entered into litigation and lodged a suit in the High Court against the development of the project. A public awareness campaign was also launched through press releases and short movies to win the public and international opinion.

2.4.3 **Achievements of litigation strategy.**

- **Damage to CoAL's Share Price.** The relationship between irresponsible mining practices and lost profits threatens closure and reputation damage to the corporation (The Centre for Applied Legal Studies, 2014). The litigation strategy adopted by the coalition against the Mapungubwe project provides enough evidence that irresponsible mining practices by companies compromise their profitability. This fact is clear from CoAL's declining Johannesburg Stock Exchange (JSE) share price during the period of litigation and launch of active media campaign by the coalition (Figure 2.5).
- **CoAL forced to take coalition seriously.** Litigation by the coalition made it clear to the CoAL that civil society would not allow mining in a sensitive area. The use of substandard Environmental Impact Assessment (EIA) studies and licensing condition would not pave way for mining in presence of an effective coalition. Allegedly, as a result of CoAL's declining JSE share price and damage to its reputation, CoAL accepted to come to the negotiation table to settle the issues.



Source: Coalofafrica.com, 2015

Figure 2.5 Series of events which altered CoAL share price.

2.4.4 **Lessons learnt.** One of the most widely accepted axioms of political science is that political and economic elites will not alter their behaviour in a more socially responsible manner unless pressured to do so by society (The Centre for Applied Legal Studies, 2014). Some of the lessons which were learnt from the coalition's campaign in the context of responsible mineral development are:-

- The project started without prior and meaningful consultation with the local community, which forced them to organise opposition in the form of an effective coalition;
- The project became subject to litigation and attracted negative publicity due to CoAL's allegedly irresponsible behaviour toward the conflict resolution;
- CoAL ran into loss since the last quarter of 2012 due to litigation and allegedly irresponsible mining practices (The Centre for Applied Legal Studies, 2014);
- Local communities are key stakeholders as they forced CoAL to the negotiation table and thus triggered the changing corporate behaviour; and
- The cost that CoAL paid by allegedly conducting business below the threshold of legal compliance is more than the practical approach to meaningfully engage the local communities into a constructive dialogue at first instance.

2.4.5 **Responsible Conflict resolution - Tintaya Copper Mine.** Tintaya copper mine is a classic example of responsible stakeholder engagement for conflict resolution by one of the world's leading mining companies. BHP Billiton's Tintaya Copper Mine in Peru covers an area of 2,300 hectares of land expropriated from local community (Chavez, 2009). In 2000, the local community formed a coalition alliance with NGOs to pursue their case regarding land loss, environmental degradation, and alleged human rights abuses by BHB Billiton (Barton, 2005). The corporation immediately formed a framework for engaging the stakeholders which was named as Tintaya's Dialogue Table. This dialogue in the folds of

CSR was able to guide this interaction because all possible affected stakeholders participated in the discussion. In December 2004, after three years of negotiation, BHP Billiton and the five communities signed an agreement compensating families for lost land (Bhpbilliton.com, 2014). A local environmental monitoring team and community development fund was also established and the issue was amicably resolved.

2.5 Principles and Building Blocks of Responsible Mineral Development

The term “responsible” means answerable or accountable, as for something within one's power, control, or management. One who is responsible is also then liable to rewards or penalties based on good or bad judgment. The term “mining” is used to mean extraction of valuable minerals or other geological materials from an ore body, seam, or reef, which forms the mineralized package of economic interest to the miner (Wikipedia, 2014).

Mining intrinsically deplete a stock resource as being an extractive industry (Goodland, 2012). Extractive activities have environmental impacts, as it will invariably affect biodiversity, hydrology, land use and soil stability. Over the past two decades, the mining industry has attempted to produce codes and initiatives on responsible mineral development. Organizations like the International Council on Mining and Metals (ICMM), International Institute for Environment and Development (IIED), Natural Resources Governance Institute, Word Economic Forum and Prospectors & Developers Association of Canada (PDAC), have actively engaged governments, companies and stakeholders for a comprehensive responsible mineral development. Through an interactive approach, the concept of responsible mining has been promoted throughout the industry. As a result, there are several codes of conducts which are followed by corporations and governments alike. A resolution was also passed at the International Union for Nature Conservation (IUCN) in the World Conservation Congress in Barcelona in 2008, supporting Responsible Mining and launching Extractive Industry

Responsibility Initiative (Earthmind.net, 2014). Similar RMD initiatives by other international and regional organizations are in Table 2.3.

Table 2.3 Codes of conduct and standards developed for responsible mineral development by different international and regional organizations.

S/No	Organization	Codes of conduct and standards	First launch
1	United Nations Economic Commission for Europe (ECE)	The 1990 Bergen Conference on Sustainable Development	1990
2	International Council on Mining and Metals (ICMM)	Annual reviews highlighting importance of responsible mineral development and Sustainable Development Framework.	2001
3	Extractive Industry Transparency Initiative	The EITI standards	2001
4	The Global Reporting Initiative (GRI)	Global Reporting Initiative (GRI) Guidelines	2002
5	The World Bank Group	The Extractive Industry Reviews	2003
6	The Equator Principle	Credit risk management framework for determining, assessing and managing environmental and social risk in projects	2003
7	Principles for Responsible Investment (PRI) and United Nations Environment Programme (UNEP)	Principles for Responsible Investment	2006
8	The United Nations General Assembly	The United Nations Declaration on the Rights of Indigenous People (UNDRIP),2007	2007
9	Economic Community Of West African States (ECOWAS)	Directive on the Harmonization of Guiding Principles and Policies in the Mining Sector.	2009
10	Natural Resource Governance Institute	Natural resource charter	2010
11	World Economic Forum (WEF)	Responsible mineral development initiative	2010
12	Prospectors & Developers Association of Canada (PDAC)	Annual reports on RMD in Canada	2011
13	International Institute for Environment and development	Discussion papers on sustainable markets	2012
14	Initiative for Responsible Mining Assurance (IRMA)	Draft Initiative for Responsible Mining. (Pending industrial inputs)	2014

Sources: Sdsg.org, 2014
Shapingsustainablemarkets.iied.org, 2014

2.5.1 **Responsible Mineral Development Initiative.** The responsible mineral development initiative was launched in 2010 by the World Economic Forum (WEF) (The World Economic Forum, 2014). In the first stage of its implementation, the aim was to find the different challenges faced by the mining industry. In the second stage, six building blocks for progress

on responsible and sustainable mineral development were presented. These six building blocks are given in Table 2.4.

2.5.2 **Natural Resource Charter.** The Natural Resource Charter provides policy guidelines for responsible mining. It clearly defines rules of engagement between governments, civil societies and the corporations on how best to manage mineral resources[4]. The challenges faced by a mineral-rich country are not local or regional. Rather, these challenges are international and an accumulated response should be presented with the collective experience of international body. The charter is not a standard operating procedure, but instead explores approaches that successful countries have used, to realize the development potential of natural resource wealth. The Natural Resource Charter guiding principles are given in Table 2.4.

2.5.3 **The Extractive Industries Transparency Initiative (EITI) standard.** The Extractive Industries Transparency Initiative (EITI) is a global coalition of governments, companies and civil society working together to formulate guiding principles for responsible mineral development. Launched in 2001, it has twelve principles for improved accountability of revenues from natural resources (The EITI International Secretariat, 2013). These principles are given in Table 2.4.

2.5.4 **International Council on Mining and Metals (ICMM)'s Sustainable Development Framework.** The International Council on Mining and Metals (ICMM) was established in 2001, following a three-year multi-stakeholder review process known as the Global Mining Initiative (GMI) launched in 1998. In May 2002, in Toronto, the ICMM launched its ICMM sustainable development framework with the vision of a practical mining, minerals and metals industry that is a key contributor to sustainable development (The

[4] Natural Resource Governance Institute, 2014

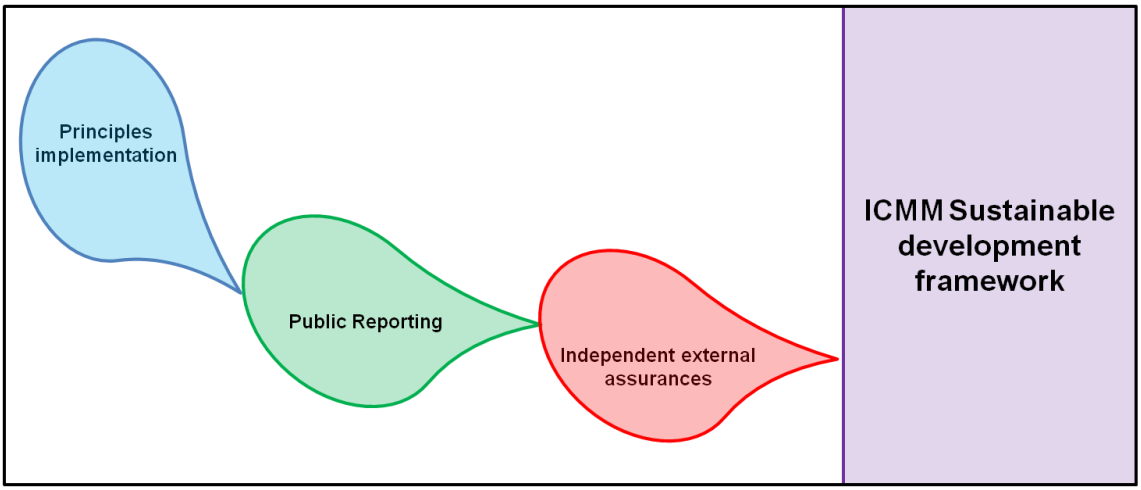
International Council on Mining and Metals, 2014). The three fundamental elements of the framework are, ten principles (given in Table 2.4); reporting mechanism for performance indicators on ICMM sustainable development principles; and independent external assurance of the reported performance of corporate members against the ten principles and Global Reporting Initiative (GRI) reporting requirements (Figure 2.6).

Table 2.4 Guiding principles for responsible mineral development formulated by different international organizations (Elements of responsible mineral development matrix are given in the middle column).

WEF Responsible mineral development initiative (RMDI)	**(NRC) National Resource Charter**	**Elements of Responsible Mineral development Matrix**		**The EITI standard**	**International Council on Mining and Metals (ICMM) Framework**
Progressive capacity-building and knowledge-sharing.	Strategy, consultation and institutions	What Government wants from? ,,,		Natural resources should be used responsibly, otherwise can create negative economic and social impacts.	Implement and maintain ethical business practices and sound systems of corporate governance
A shared understanding of costs and benefits.	Accountability and transparency	Gov	Transparency, management and accountability across the board	Management of natural resource is the domain of governments to be exercised in the interests of their national development.	Integrate sustainable development considerations within the corporate decision-making process
Collaborative processes for stakeholder engagement.	Exploration and license allocation	Corp	Transparency, development, environmental protection and flow of revenue	The benefits of resource extraction occur over many years and can be highly price-dependent.	Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities
Transparent processes and arrangements.	Taxation	SHs	Knowledge sharing, Capacity building and national debate about extraction strategy	Public understanding of government revenues and expenditure is a realistic option for sustainable development.	Implement risk management strategies based on valid data and sound science
Thorough compliance monitoring and enforcement of commitments.	Local effects	What Corporation wants from? …		Transparency and accountability by governments and companies.	Seek continual improvement of our health and safety performance

Early and comprehensive dispute management.	Nationally owned resource companies	Gov	• Sound fiscal regime and taxation system • Contract binding & Respect for law	Respect for contracts and laws.	Seek continual improvement of our environmental performance
	Revenue distribution	Corp	Profit, transparency and self-accountability	Enhanced environment for domestic and foreign direct investment.	Contribute to conservation of biodiversity and integrated approaches to land-use planning
	Revenue volatility	SHs	Constructive participation through work force	Accountability by government on revenue streams and public expenditure.	Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products
	Government spending	What Stakeholders wants from? …		High standards of transparency and accountability.	Contribute to the social, economic and institutional development of the communities in which we operate
	Private sector development	Gov	• Disclosure of revenue and spending • Strict environmental and economic policies	Disclosure of payments and revenues.	Implement effective and transparent engagement, communication and independently-verified reporting arrangements with our stakeholders
	Roles of multinational companies	Corp	• Local development • Environmental protection • Socio-economic uplift	Disclosure should involve all extractive industry companies operating in that country.	
	Role of international community	SHs	Coalition for check and balance	Across-the-board stakeholders consultation.	

Source: World Economic Forum, 2015
Natural Resource Governance Institute, 2014
Eiti.org, 2014
Icmm.com, 2015



Source: Icmm.com, 2015

Figure 2.6 Fundamental elements of ICMM sustainable development framework.

2.5.5 **Responsible Mineral Development Matrix.** Relationships are built on mutual confidence which requires each member to fulfil its obligations. Indeed, mining relationships among governments, corporations and communities become responsible when each member fulfils its obligations towards other members. To summarize the responsibilities of each member in a mining relationship, table 2.5 contains a Responsible Mineral Development Matrix, designed on the principles of RMDI, NRC, EITI standards and ICMM framework. Each member in the table's row requires each member in the table's column to fulfil the corresponding responsibility. The matrix will result in Responsible Mineral Development if responsibility at each cell is fulfilled by the corresponding member.

Table 2.5 Responsible mineral development matrix.

	Government	**Corporation**	**Local communities and other Stakeholders**
Government	Management, transparency, and accountability	Transparency, local development, environmental protection and flow of revenue	Capacity building and national debate about extraction strategy
Corporation	• Sound fiscal regime and taxation system • Respect for laws and contract agreement	Profit, transparency and self-accountability	Constructive participation and skilled labour
Local communities and other Stakeholders	• Knowledge sharing • Disclosure of revenue and spending • Environmental and economic control	• Local development • Environmental protection • Socio-economic uplift	Strong coalition for check and balance on the corporations and government

Source: Up dated

Help from: World Economic Forum, 2014
Natural Resource Governance Institute, 2014
Eiti.org, 2014
Icmm.com, 2015

2.5.6 **Other international initiatives impacting responsible minerals development.**

- **Global Reporting Initiative (GRI, 2014).** The Global Reporting Initiative (GRI) has produced a sustainability reporting framework which requires the corporations to measure and report their economic, environmental, and social performance[5].
- **Framework for Responsible Mining.** The Framework for Responsible Mining is a joint-effort by NGOs, retailers, investors, insurers, and technical experts working in the minerals sector. It outlines environmental, human rights, and social issues associated with mining and extracted products[6].
- **UN's Guiding Principles on Business and Human Rights.** These are UN's official principles on duties of corporate towards human rights[7].
- **Voluntary Principles for Security and Human Rights.** Formulated by US State Department and the Foreign and Commonwealth Office of the United Kingdom in December 2000 for companies operating in zones of conflict or fragile states. It provides a framework for companies to work in a way that will protect their interests while respecting human rights and freedom (The Voluntary Principles on Security and Human Rights, 2014).
- **IFC Performance Standards.** These are the performance principles formulated by the International Finance Corporation (IFC), and apply to projects supported by IFC and the World Bank (International Finance Corporation, World Bank Group, 2013).

[5] Database.globalreporting.org, 2014
[6] Institutional and Corporate Sustainability, Australia and New Zealand (ANZ) Banking Group Limited, 2005
[7] United Nations Human Rights, Office of the High Commissioner, 2011

- **OECD Guidelines for Multinational Enterprises.** Guidelines by Organization for Economic Cooperation and Development (OECD) on disclosure, employment and industrial relations, environment, combating bribery, consumer interests, science and technology, competition and taxation[8].
- **Akwe-Kon Guidelines.** The Akwe-Kon guidelines, by the Secretariat of the Convention on Biological Diversity are set of rules for consultation with indigenous communities where development is taking place (Secretariat of the Convention on Biological Diversity, 2004).
- **Initiative for Responsible Mineral Assurance (IRMA).** A draft created by the IRMA Steering Committee with consultation of stakeholders for responsible mineral development. Presented in July 2014, IRMA has asked feedbacks to finalize the standards in 2015 (The Initiative for Responsible Mining Assurance, 2014).
- **ISO 26000 and global governance for sustainable development.** In 2010, ISO, the International Organization for Standardization, published ISO 26000 as a guidance standard for organisations on social responsibility. The standard is designed to guide organisations in how they can contribute to sustainable development (International Institute for Environment and Development, 2012).

2.6 Conclusion

This chapter defined responsible mineral development and discussed why it is necessary for corporations and governments to adopt it. The basic principle behind the responsible mining framework is that mining should "DO NO HARM" to our environment, human rights and social issues. The chapter further described the impacts of irresponsible mining on our environment and social life of local community. The Mapungubwe project was discussed as a case study for changing corporate behaviour in response to community campaign against

[8] Organisation For Economic Co-Operation And Development, 2008

irresponsible mining practices. The chapter then gave a detailed account of different frameworks formulated by international organisations for responsible mining practices and sustainable business. Finally, a responsible mineral development matrix was designed to help the three major players to fulfil their responsibilities in responsible mineral development.

The next chapter will present Pakistan's geostrategic location and its importance in a future energy corridor. It will illustrate the geology and mineralization of the country. It will further give an overview of the economy of Pakistan and its national economic goals. The chapter provides a detailed account of World Bank statistics together with the political, socioeconomic and security environment of Pakistan. Chapter three will also describe the present mineral policy development framework, legal framework, mineral asset knowledge base and administration of rights.

CHAPTER THREE

PAKISTAN - AN OVERVIEW

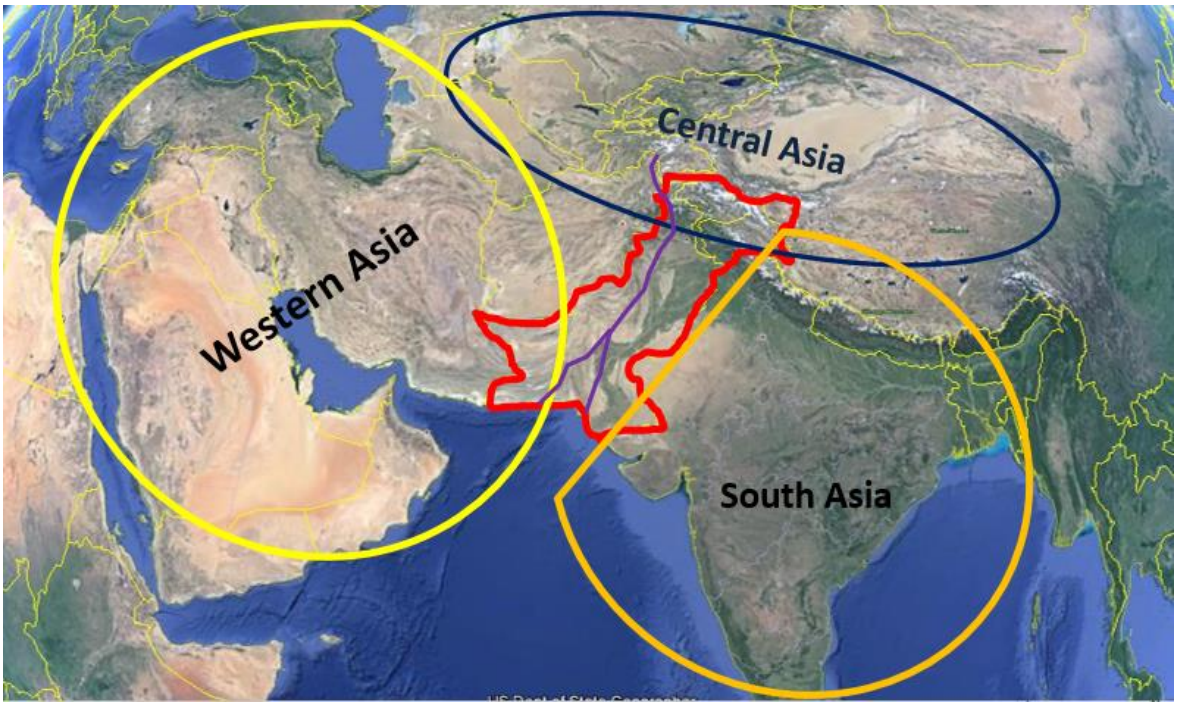
3.1 Introduction

Pakistan today occupies an area that has its roots starting back from the evidence of human activity of Homo Sapiens 75,000 years ago (Wikipedia, 2014). The Indus valley civilization in Pakistan was one of the first civilizations, dating back to 3,300 BC to 1,300 BC (Kennedy, 2000). The Arabs conquered almost all of sub-continent by the 10th century and Muhammad Bin Qasim was the first to come to India in 712 AD (Lost Islamic History, 2012). Gradually Islam started spreading through the sub-continent and by the 16th century, Muslim power reached its peak under the Mughal Dynasty. By the 1800s, the British East India Trading Company had become a dominant power in India, and Bahadur Shah Zafar, the last Mughal emperor, was deposed from power in 1858. After the First World War, as Britain prepared to grant independence to India, Quaid-i-Azam Muhammad Ali Jinnah advocated a separate homeland for Muslims of India. Quaid-i-Azam was successful in persuading the British for the partition of India-despite fierce opposition from the Congress led by Mahatma Gandhi. As a result, Pakistan got its independence from British India in 1947, and became a sovereign country in South Asia (Sindhu, 2016 and Roy, 2014).

3.2 Geographical Location and its Importance

Pakistan is located at the cross-roads of strategically important regions of Central Asia, South Asia, and Western Asia (Figure 3.1). Another importance associated with Pakistan is its 1,046 kilometres of coastline along the Arabian Sea that is the nearest transportation route for central Asian oil and minerals. The total length of the country is 1,875 Km, width is

approximately 1,000 Km and the total area is 803,940 Km² (Survey of Pakistan, 2014) (Figure 3.2).



Source: Updated Google maps

Figure 3.1 Geo strategic location of Pakistan.



Source: Geological Survey of Pakistan, 2013

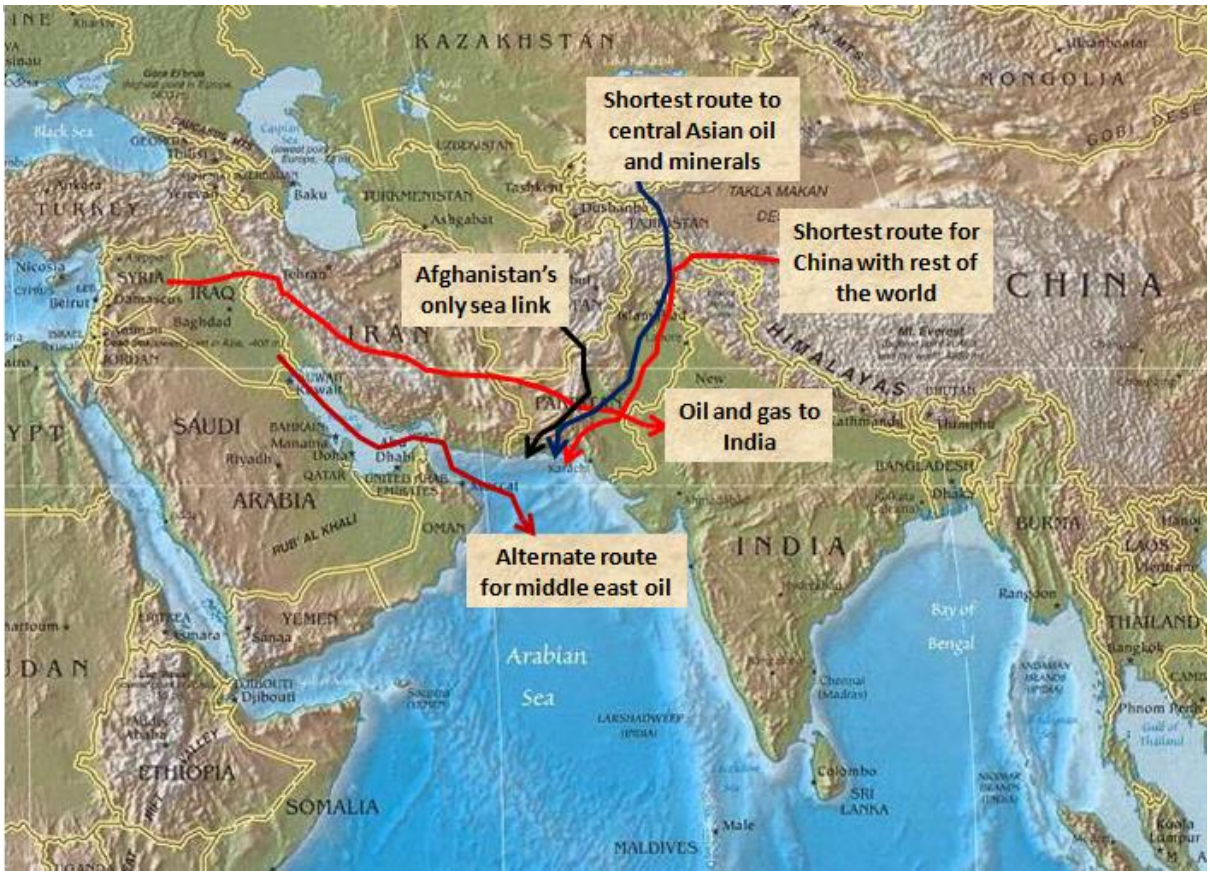
Figure 3.2 Map of Pakistan.

Pakistan is located at the gateway to the central Asian states, which makes it an important player in the oil and energy space (World Bank, 2014). The following are strategic-importance aspects of Pakistan (Figure 3.3):-

- The shortest route for Central Asian oil and minerals passes through Pakistan;
- Pakistan provides the nearest sea link to land-locked Afghanistan. (This importance was twice demonstrated by Pakistan by providing the link to Afghanistan in the Cold War and the War on Terror by the US and its allies);
- China's shortest route to warm waters (Indian Ocean) is through Pakistan's Karakoram highway, making it an important player in the region (The World Bank, 2014);

- Located at the hub of energy corridor from Middle East and gulf to India and China; and
- An alternative route for Gulf oil runs through Pakistan's sea territory.

.



Source: Updated World Bank, 2014

Figure 3.3 Map showing geo strategic importance of Pakistan.

3.3 Geology and Mineralization of Pakistan

Pakistan's geological history can be traced back 1.8 billion years. Pakistan is divided into two broad categories, the hilly and mountain areas which constitute about 60 % of the total area, and plains (40%) (Government of Pakistan, 2013). Pakistan is generally divided into 9 geological regions:-

3.3.1 **The plains.** Areas along the Indus River and its tributaries, from North to South extending up to the Arabian Sea (Figure 3.5). This includes the areas of Punjab, west Khyber

Pakhtunkhwa, east Baluchistan and Sindh (Geological Survey of Pakistan, 2012). These plains are famous for agriculture and are the main contributor to the national economy.

3.3.2 **The platform area.** The platform area runs all along the Indian border and includes the Thar semi-desert (Figure 3.5). The area is rich in coal and other hydrocarbon minerals and the world's sixth largest coal resources at Thar are located in this part of the geological belt (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

3.3.3 **The Folded belt.** The north and western arc of Pakistan is known as "the folded belt" and the rock formation in this area is mainly sedimentary rocks. The arc consists of Potohar area that is bounded by Margalla on the north and salt ranges on the south (Figure 3.5). The salt ranges of Pakistan trace back its origin from more than 500 million years ago (Government of Pakistan, 2004). Texila in the north is famous for black limestone. Other minerals in the arc include dolomite, coal, iron, gypsum and silica sand (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

3.3.4 **Mélange zone.** The area west of the Indus basin comprises of a specific zone called the mélange zone (Figure 3.5). It is created by the collision of the Indus basin with the Baluchistan basin in the west and the Afghanistan basin in the North West. The Muslim Bagh and Waziristan chromites and lead and zinc near Khuzdar are famous minerals of the zone (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

3.3.5 **Himalayan Belt.** This belt is located among the Kohistan, Karakoram and folded belt. The belt starts from Charsada in the west and ends as far as Azad Kashmir in the east (Figure 3.5). It also has the oldest granite rocks at Hazara. The famous minerals of the belt are granite, marble, soapstone, phosphate and other building stones (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

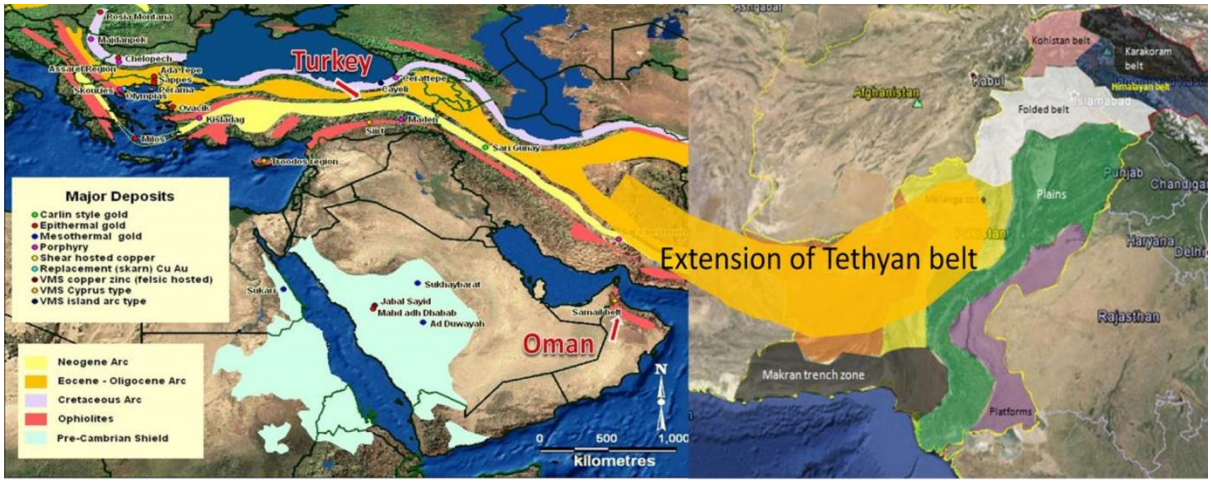
3.3.6 **Kohistan belt.** The Kohistan belt is located to the north of the Himalayan belt. The area stretches from lower parts of Hazara to the lower parts of Skurdu, Gilgit and as far as the

Neelam valley (Figure 3.5). This belt has igneous and metamorphic rocks and important minerals include platinum, nickel, chromites, emerald, manganese and quartz (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

3.3.7 **Karakoram belt.** The areas further north up to the Chinese border in the north and Afghanistan border in the west are included in the Karakoram belt (Figure 3.5). This belt consists of rugged mountains and remains snow-covered throughout the year. K-2 is the highest range in the area. This belt is famous for precious gem stones such as ruby, aquamarine, topaz and quartz crystals. Exploratory work has proved vast deposits of gold, copper, lead, zinc, antimony, cobalt, and nickel in the area (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

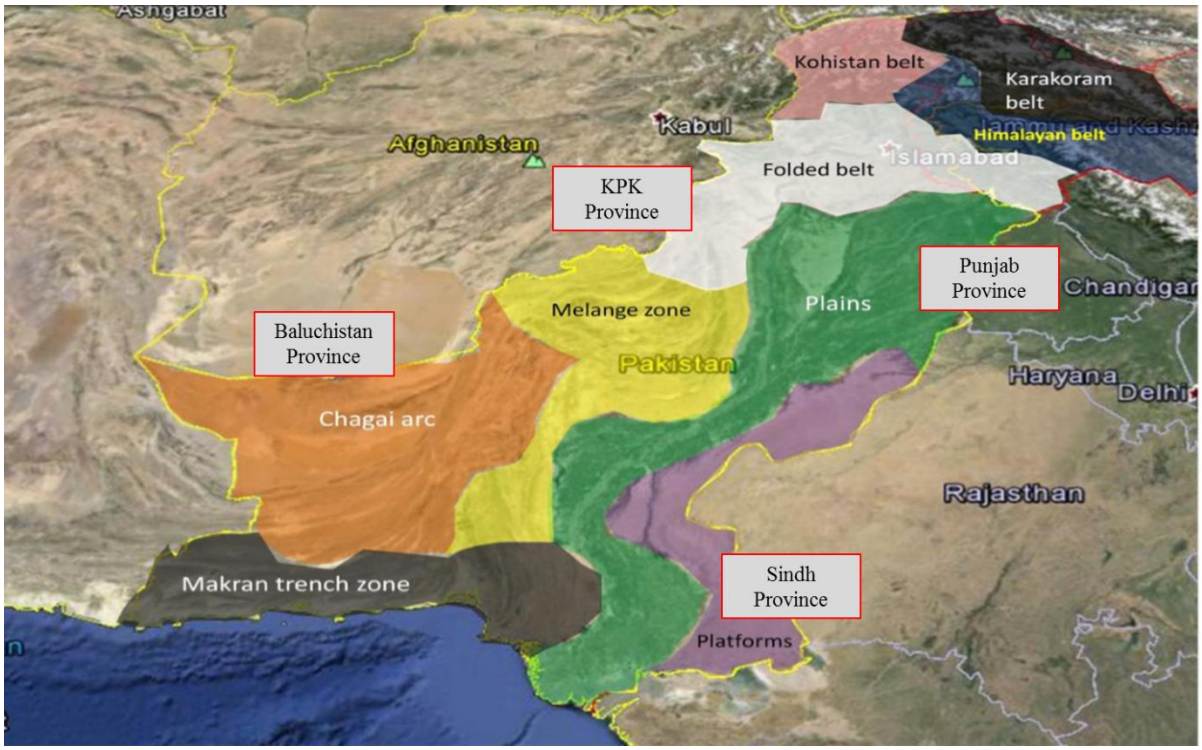
3.3.8 **Chagai Arc.** Chagai arc is the body of volcano that is extended from the mélange zone in the east to the Iran border in the west (Figure 3.5). This is the richest geological area in Pakistan as far as mineral deposits are concerned. Saindak and Reko diq have significant proven deposits of gold, copper, silver and iron (Ministry of Petroleum and Natural Resources of Pakistan, 2013). The Chagai belt is also connected to the well-learned Tethyan belt of gold and copper (Figure 3.4).

3.3.9 **Makran trench zone.** The area all along the Arabian Sea and extended up north to the Chagai arc is known as Makran trench zone (Figure 3.5). The Arabian plate is moving up north in this belt. Zircon and titanium have been reported at some places in the zone (Ministry of Petroleum and Natural Resources of Pakistan, 2013).



Source: Updated Google maps

Figure 3.4 Extension of Tethyan belt into Chagai arc of Pakistan.



Source: Updated
Google maps
Geological Survey of Pakistan, 2013

Figure 3.5 Geological sub-division of Pakistan.

3.4 **Economy of Pakistan**

Pakistan has a mixed economic system[9], where market forces determine the price of commodities but within the rules and laws determined by the government. The economy of Pakistan is the 27th largest in the world in terms of purchasing power parity (PPP), and 44th largest in terms of nominal GDP. However, since Pakistan has a population of over 183 million (the world's 6th-largest), GDP per capita is only 3,056 US$, ranking 140th in the world (World Bank, 2014). Pakistan has a mixed economy with a blend of Islamic laws. The prohibited concepts in Islamic banking are "Gharar" uncertainty; "Maysir" gambling; and "Riba" Interest. Hindering foreign investment in Pakistan is the fact that the Islamic banking system is poorly understood by many other countries and is perceived to be strict and unconventional. [10]. The national objectives of Pakistan are macroeconomic stability, financial discipline, sound policy for broad-based growth, job creation and poverty reduction (Government of Pakistan, 2013). The nation's principle economic objectives are:-

- Accelerating economic growth;
- Maintaining macroeconomic stability;
- Investing in human capital;
- Providing favourable environment for foreign investments;
- Expanding social safety nets; and
- Improving governance.

Decades of internal political disputes and low levels of foreign investment have led to slow growth and underdevelopment in Pakistan. Unemployment in official statements is below 6%, but this is not a realistic picture of unemployment in Pakistan. Much of the economy is

[9] In mixed economic system private companies are allowed most power over decisions regarding profits and distribution of wealth while government collects taxes from them to work for the benefit for the poor to help create equal distribution of wealth. Government also regulates companies with rules and regulations.
[10] The Islamic banking system and its operating procedures will be explained in the Chapter Seven.

informal which causes underemployment[11] to be high. Over the last decade, because of Pakistan's involvement in the Coalition War against Terror, the situation has further deteriorated, resulting in low growth and high inflation, led by high food prices. Poverty has increased to affect almost 50% of the population (UN Human Development Report, 2011).

Many countries depend largely on exports of their mineral resources, earning a major portion of their foreign exchange from these exports. Pakistan is generally regarded to be endowed with extensive geological potential. However, unlike other resource-rich developing countries, it has not yet been able to promote growth and alleviate poverty by exploiting its natural resources for maximum benefit. Infrastructure development is important for mineral development because it provides the backbone for mineral extraction. The provision of basic and efficient infrastructure such as transport, communications and utilities provides an enabling environment for the private sector that then takes the lead in the growth process (Jan, 2012). Table 3.1 provides Pakistan's global infrastructure ranking. The rankings are on a continuous slide for transport, security and public institutions, which are viewed unfavourably by foreign investors.

Table 3.1 The global infrastructure ranking, 2013-14 out of 142 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	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: The World Economic Forum, 2014

Pakistan has recently invested in public sector improvement, but poor governance (poor accountability, monitoring, stakeholder participation, etc.) continues to plague its institutions

[11] In case of Pakistan, a condition in which people are employed at jobs inadequate with respect to their training or economic needs.

(Planning Commission, 2011). Government institutional effectiveness rating in 2013 plunged to -0.8 in the World Bank governance indicators (World Bank, 2013), which has further worsen the environment for foreign investments. A high-level overview of Pakistan is given in Table 3.2.

Table 3.2 Overview of Pakistan.

S/ No	Description	Remarks
1	Democracy	Parliamentary form of government
2	Frequency of multi-party election	5 years (Out of 60 years of independence, 30 years had been military rule)
3	Type of economy	A mixed economic system (Officially an Islamic economic system is enforced, but the market mainly operates on the capitalist system)
4	Infrastructure	See Table 3.1
5	Population (2013)	183 million
6	Estimated population growth (2010-2013)	1.7% annually
7	Surface area	803,940 km²
8	GDP (2013)	245 US$ billion
9	Annual GDP growth (2012-2013)	3.6 % (Pakistan Bureau of Statistics)
10	GDP breakdown for different sectors (2013)	Agriculture: 20.1% Industry: 25.5% Services: 54.4% Production from mining and quarrying in industrial share accounted for 10% of the GDP and the value of output from the mineral industry accounted for 2.5% of the GDP, which posted a growth rate of 2.4% in 2011.
11	Tax revenue/GDP (2013)	11.9%
12	Mining tax (definition/ scope) revenue/ GDP (2013)	0.4 % of GDP
13	Unemployment (2012)	6.2%
14	Population below international poverty line (2013)	22.3%

Sources:
Government of Pakistan, 2014
Ministry of Finance, Government of Pakistan, 2014
The World Bank, 2014
The World Economic Forum, 2014

3.5 Mineral Policy Development Framework - Pakistan

The Constitution of Pakistan declares that the responsibility for nuclear minerals and those found in the territory are under control of the central government, i.e. with the federal government. In 2008, under the 18th Amendment to the Constitution, all other mineral resources were declared under the direct control of provincial governments (Government of Pakistan, 2013). Post 18th Amendment scenario empowers all provincial governments/federating units for any matter related to minerals under their control. Provinces may regulate exploration, mineral development and safety, whereas federal government is responsible for geological/geophysical survey and mapping, national and international coordination and formulation of national polices.

The Ministry of Petroleum and Natural Resources of government of Pakistan is entrusted with the responsibility for policy formulation, provision of policy guidelines to the provinces and coordination of development of mineral sector of Pakistan to attract and sustain private sector investment (Ministry of Petroleum and Natural Resources, 2004). The vision of the Ministry for the mining sector is of a strong, vibrant and sustainable sector that allows the private sector to contribute to the economic development of Pakistan (Ministry of Petroleum and Natural Resources, 2004).

3.5.1 **Legal framework.** Pakistan's legal framework under customary law defines three types of land title: land held by the state, land held by the private owner, and communal-rights-subjected land (USAID, 2012). All other land that does not fall under these categories automatically falls under the control of provincial government (if within the territory of a province), or with the federal government (if in federal area) (GOP Constitution 1973). Ownership tenure is the common type of tenure in Pakistan. Personal freehold land rights and

communal ownership rights are accepted under customary law (Anwar, 2005; World Bank, 2007; GOP, 2006).

The current legal framework of the mining sector in Pakistan consists of three different documents (The 1948 Act for the minerals and oil-gas sectors, National Minerals Policy-1995 and National Minerals Policy-2012). The latest policy (National Mineral Policy, 2012) was drafted and implemented in 2012 through a joint inter provincial coordinated effort (National Minerals Policy-1995 was repealed). However, despite this joint exercise, the main stumbling block in the successful implementation of this policy is the lack of coordination among the federal and the provincial levels, as well as the provinces themselves. This causes divergences in the application of legal framework and impeding the implementation of national mineral policy in homogeneous and uniform way. Under the legal framework, royalty is being collected by the provisional governments at the following rates (Ministry of Petroleum and Natural Resources, 2013):-

- Precious stones 10% of revenue;
- Precious Metal 3% of revenue;
- Base Metals 2% of revenue; and
- Others 1% of revenue.

In addition, following rates of royalty on coal are being charged by the provinces, along with a 15% sales tax per tonne (Ministry of Petroleum and Natural Resources, 2014):-

- Government of Pakistan 0. 2 US$/ tonne
- Government of Punjab 0.35 US$/ per tonne
- Government of Sindh 0.6 US$/ per tonne
- Government of NWFP 0. 25 US$/ per tonne

The royalties on construction and industrial materials are charged according to weight and not as a percentage of sales. For all other minerals, a standard policy is applicable according

to which royalty is charged on the gross value of sale determined on a third-party (arms-length) basis (Ministry of Petroleum and Natural Resources, 2013). Another important point in the national mineral policy is that royalties are to be calculated at the first point of sale, without any allowable deductions from gross value.

All provinces have a separate department for Mines and Minerals that grant mining licenses and leases. These departments are also responsible for collection of fees and royalties and monitoring mineral activities in the sector (GOP & World Bank, 2003). All other tasks, such as organisation of plans, recording of exploration licenses extents and leases, renewal, surrender of mineral titles and relinquishment of acreage are also the responsibility of the provincial mineral department. The department has three sub-divisions for (i) Licensing (ii) Exploration Promotion and (iii) Inspectorate of Mines (Ministry of Petroleum and Natural Resources. 2013). Apart from these sub-divisions, each province has developed a mechanism for implementation of the NMP through a separate agency working directly under the chief minister directorate. However, the provincial mineral department and the monitoring agency are not working in the manner that conforms to international best practice and has thus failed to implement what was conceived in the formulation process of NMP-2. Their main shortcomings include:-

- Difficulty to provide full and easy access to data/information;
- No cadastral system for online dissemination of information;
- Inadequate definition of responsibilities among different organizational units;
- Lack of adequate funding; and
- Lack of transparency in decision making.

The federal government of Pakistan regards mining as a priority sector and has recently, in cooperation with the provincial governments, issued a national mineral policy of 2012. Salient features of mineral policy development in Pakistan are listed in Table 3.3.

Table 3.3 Mineral and petroleum policy development of Pakistan.

S/No.	Description	Rate/ Remarks
1.	Mineral Policy	One Act and two policies promulgated so far:- 1948(Act), NMP-1, 1995 and NMP-2, 2012.
2	Mineral/ petroleum legislation	Covered under article 141 & 142 of the constitution of Islamic republic of Pakistan, 1973.
3	Legal system of Pakistan	Based upon the legal system of British India; thus ultimately on the common law of England and Wales, but influenced by Islamic Sharia law.
4	Mineral royalties	State/ provincial royalties @ Precious stones 10%, precious metals and semi-precious stones 3%, base, metals 2%, all other minerals 1%.
5	Exploration fee	2.5 US$ / Km² (10% area of Reconnaissance license and not exceeding 1000 Km²).
6	Excise duty	Depends on type of mineral.
7	Licence fee	50 US$; one-off payment at the start of operations.
8	Advance annual fee	0.05 US$ per acre.
9	Departmental demarcation fee	50 US$
10	Security fee	50 US$
11	Surface rent	Depends on type of mineral and value of land; fixed by agreement between landowner and contractor.
12	Mineral ownership	Nuclear minerals and those found in the territory under control of the federal government are the ownership of the federal government, while all other mineral resources are under direct control of provincial governments.
13	Level of ownership	Federal and provincial governments.
14	Security of tenure	Generally non-exclusive in provinces, especially in the province of Punjab and Sindh.
15	Land and mineral rights registry	None of the three provinces provides for the establishment and rigorous maintenance of a registry of applications filed for mineral titles.
16	Environmental provision required	Yes (periodic reports detailing the measures taken by respective company for compliance with environmental requirements)
17	Special incentives in remote areas	• Protection from Expropriation. • Repatriation of Capital & Profits allowed. • Mining operators will be allowed to insure their assets and risks with international insurance companies.

Source: Ministry of Petroleum and Natural Resources of Pakistan, 2013

3.5.2 **Mining revenue and taxation.** Income from mining operations is liable to various types of taxation. Expenditure incurred on exploration operations qualifies for an immediate deduction in the determination of taxable income (GOP, 2012). Expenditure on project development is deductible at the rate of 25% per annum, in line with international practices,

and depletion allowances do not apply (GOP, 2012). A withholding tax of 7.5 % also applies to mining operations, as specified in the National Mineral Policy. Other taxes applicable to mining operations include sales tax on exportable minerals and Zakat, the latter payable by resident Muslim contractors only. An additional profit tax applies for large-scale mining carried out by foreign investors (GOP, 2012). This rate is not fixed and is determined at the time that the investment agreement is drawn up. In addition, excise duty at the rate of 10 to 40 US$ per kilo tonne is levied on minerals.

3.6 **Mineral Assets Knowledge Base**

Mining is truly an international business that depends on the trust and confidence of investors and other stakeholders. This confidence by the investor in a country's mining industry can be enhanced by providing a comprehensive knowledge of its mineral assets and regulatory framework. This knowledge base will serve industry and policy makers as a valuable source of data. Ideally, all this information should be stored and publicised through a Mining Cadastre System. The need and design parameters of a Mining Cadastre System for Pakistan will be discussed in Chapter 9. The mineral assets knowledge base and administration of rights of Pakistan's mining industry are given at Table 3.4 and 3.5.

Table 3.4 Mineral assets knowledge base of Pakistan.

S/No.	Description	Remarks
1	Geological exploration data	Available with Geological Survey of Pakistan 1:50,000 Scale, 2,88,000 Km^2= 32.7% of area. 1: 2,50,000 Scale, 880,000 Km^2=99.8% of area.
2	Average expenditure on geo-mapping (Per Km^2 of country area)	3.5 US$ per Km^2 (Approximately) (Geological mapping)
3	Private exploration expenditure (Per Km^2 of country area)	No data available
4	Earth scientist resources	Only at the geological survey of Pakistan.

Source: Ministry of Petroleum and Natural Resources of Pakistan, 2013

Table 3.5 Administration of rights (Pakistan).

Description	Rate/ Remarks
State agency	Ministry of Petroleum and Natural Resources
Mineral law	Covered under article 141 & 142 of the Constitution of Islamic republic of Pakistan, 1973.
General comment on law	Mining rules describe the rights and obligations of mineral licenses and leases but they do not explicitly clarify the nature of these rights.
Information system	Available at geological survey of Pakistan without any Geodatabase/ Mining Cadastre System.
Reconnaissance permission:	
Maximum size (ha)	Different for all Provinces: Baluchistan: 10,000 Km^2 Punjab: 5,000 Km^2 Sindh: 100 Sq. Km
Duration (months)	12
Renewal (months)	(1) In the case of an application for a first renewal of the licence, in respect of an area of land greater in extent than fifty per centum of exploration area at the date of the issue of the exploration licence; (2) in case of an application for a second renewal, in respect of an area of land greater in extent than fifty per centum of the exploration area immediately prior to the date of the application for the second renewal, or such other proportion of the exploration area as the Licensing Authority may, for good technical or other reason, grant; or (3) in the case of a second renewal unless it is shown by the holder of the expiration licence that a further renewal is necessary for the completion of a full feasibility study of the discovered deposits and that the proposed activities were not reasonably completed during the first renewal.
Relinquish areas	50% of license area (After completion of two years)
Minimum spending	As per program of expenditure
Work to program	Under a detailed work program
Environmental plan	Both federal and provincial environment protection requirements are to be fulfilled.
Social requirements	Applicant needs to provide proposals for the prevention of pollution, the treatment and disposal of wastes, the reclamation of land and the protection of water.
Reporting requirements	Yes (Department of respective province)
Rights	Mining rules describe the rights and obligations of mineral licenses and leases but they do not explicitly clarify the nature of these rights. The licenses are personal property rights and the leases are real property rights; the exact legal nature of the rights being determined by other laws.
Restrictions	NMP do not impose reconnaissance area restrictions limiting the areas available for exploration and mining.
Prospecting rights:	

Maximum size (ha)	Area not exceeding 1,000 Km²
Duration (months)	36
Renewal (months)	Renewed for a period not exceeding three years over 50% of the area of the original Exploration License.
Relinquish areas	50% of exploration license area
Minimum spending	As per program of expenditure
Work to program	Under a detailed work program
Environmental plan	Both federal and provincial environment protection requirements are to be fulfilled. An application for a mining lease must be accompanied by an Environmental Impact Assessment ("EIA") in compliance with the Federal Environmental Protection Act. This must identify the adverse effects of the proposed operations on the environment, and state the measures to be implemented in order to control or eliminate those effects.
Social requirements	Applicant needs to provide proposals for the prevention of pollution, the treatment and disposal of wastes, the reclamation of land and the protection of water
Reporting requirements	Yes (Department of respective province)
Rights	Mining rules describe the rights and obligations of mineral licenses and leases but they do not explicitly clarify the nature of these rights. The licenses are personal property rights and the leases are real property rights; the exact legal nature of the rights being determined by other laws.
Restrictions	NMP do not impose excessive restrictions limiting the areas available for exploration and mining.
Retention permit	
Maximum size (hectare)	Area not exceeding 1,000 Km²
Duration (months)	36
Renewal (months)	12
Relinquish areas	50% of area.
Minimum spending	As per program of expenditure
Work to program	Under an approved work program
Environmental plan	Both federal and provincial environment protection requirements are to be fulfilled. An application for a mining lease to be accompanied by an Environmental Impact Assessment ("EIA") in compliance with the Federal Environmental Protection Act. This must identify the adverse effects of the proposed operations on the environment, and state the measures to be implemented in order to control or eliminate those effects.
Social requirements	Applicant needs to provide proposals for the prevention of pollution, the treatment and disposal of wastes, the reclamation of land and the protection of water
Reporting requirements	Yes (Department of respective province)
Rights	Mining lease will be granted to the applicant who holds an exploration/ retention license.
Restrictions	NMP do not impose reconnaissance area restrictions limiting the areas available for exploration and mining.

Mining rights	
Duration (months)	30 years or the estimated life of the mine
Renewal (months)	A single 10 years allowed.
Relinquish areas	Baluchistan: 50% of the license area at the time of each of the two permitted renewals of exploration license Sindh: 50% of the license area at the time of the second renewal only.
Minimum spending	As per program of expenditure
Work to program	Under an approved work program
Environmental plan	Both federal and provincial environment protection requirements are to be fulfilled. An application for a mining lease to be accompanied by an Environmental Impact Assessment ("EIA") in compliance with the Federal Environmental Protection Act. This must identify the adverse effects of the proposed operations on the environment, and state the measures to be implemented in order to control or eliminate those effects.
Social requirements	Applicant needs to provide proposals for the prevention of pollution, the treatment and disposal of wastes, the reclamation of land and the protection of water
Reporting requirements	Yes (Department of respective province)
Rights	Mining lease will be granted to the applicant who holds an exploration/ retention license. The grounds for cancellation of mineral rights are too broad, and create excessive insecurity for investors.
Restrictions	NMP do not impose reconnaissance area restrictions limiting the areas available for exploration and mining.

Source: Ministry of Petroleum and Natural Resources of Pakistan, 2013

Analysis and evaluation of the mineral policies and management framework of the Ministry clearly indicates certain factors that are stumbling blocks in the development of the sector. These factors are: insufficient monitoring framework and evaluation mechanism; lack of community base resources management programs; political instability, insecurity within mineral rich areas; lack of foreign investment in the country; authoritarian nature of the State; lack of required stability in mineral sector. Furthermore, the alignment of the interests of ruling elites with mining companies and the political marginalization of rural and indigenous people have led to the State, usually in collaboration with mining companies, violating the human rights of communities. Policy flow has tended to be top-down while access to information has been difficult because of a culture of secrecy.

3.7 Summary of Concerns

In order for Pakistan to exploit maximum benefits from its mineral resources for growth and poverty alleviation, it needs to address key concerning areas and bring them to the level of commonly-accepted international best practices. Some of these concerns are:-

- Complex and out-dated mining institutional framework; (Critical concern)
- Fragile political economy; (Critical concern)
- A legal framework with non-existent inbuilt guarantees and sureties for investment;
- A regulatory framework which is not in line with international best-practice for mining;
- Non-incentive based fiscal framework and taxation system;
- Non-existence of stakeholders participation mechanism and regulatory body; and
- Non adherence to the concept of sustainable development.

3.8 Conclusion

Chapter three presented Pakistan's strategic location and its importance as a future energy corridor. It also illustrated the geology and mineralization of the country. An overview of the economy of Pakistan and its national economic objectives was provided. A detailed account of World Bank statistics, political, socioeconomic and security environment of Pakistan was presented. It described the present mineral policy development framework, legal framework, mineral asset knowledge base and administration of rights. Finally, chapter three identified some areas of concern as considerations for the development of a new NMP.

The next chapter will describe the methodology to formulate selection criteria on which developing countries will be selected for the purpose of a comparative analysis.

CHAPTER FOUR

SELECTION OF DEVELOPING COUNTRIES THAT CAN OFFER LESSONS FOR PAKISTAN

4.1 Introduction

Mining is an economic activity that involves decisions strongly associated with future risk and uncertainty. Corporations analyse these risks before an investment. A developing country has to offer a suitable environment for investment, so that corporations can trust its policies to facilitate mining investment. For an investment-friendly mining sector, Pakistan's policy must be in line with the world's leading mineral economies, and must also be aligned with developing country objectives. We need to fill visible gaps between Pakistan and the world's leading mineral policies. This chapter describes the method for the selection of countries in order to do a gap analysis with Pakistan. Several criteria were formulated to analyse countries and select them for this analysis. This part of the research is very important, as it will affect formulating a new mineral policy framework for Pakistan.

Two important considerations were kept in mind during the process of choice of countries: first, a developing country like Pakistan should be selected; and second, at least two countries must have Islamic background and law. Islamic background means Muslim countries with Sharia law effecting its economic environment. Uncertainty over contract enforcement raises the risks of doing business as contracts form the basis of international trade (Powell and Rickard, 2010). Unlike secular legal traditions, Islamic law is based on religious principles that can hinder enforcement of a contract (Khadduri, 1956). The situation is more complex in the case of Pakistan, as although an Islamic economic system is officially enforced, the Pakistan's market mainly operates on the capitalist system (World Bank, 2014). A suitable

balance between Sharia law and capitalism is therefore required to develop a NMP aligned with the economic system of Pakistan.

Five criteria were used to select developing countries for this purpose.

- The *first* criterion is the Moody's rating (Evaluation of country economic and political risk for international investors). Political instability is negative for foreign investment as it results in regulatory changes and potential breach of contract by new governments;
- The *second* criterion is the mining countries attractiveness ranking by Behre Dolbear. The ranking is an annual advice to the mining corporations on political risk of a particular country;
- The *third* criterion is considering trends in global exploration spending patterns. It is a direct indicator of countries' mineral wealth and good mineral policy framework. It also reflects the attractiveness of the leading mining companies for exploration;
- The *fourth* criterion is the emerging countries' rating by the Alliant insurance brokers and risk advisors. These are emerging countries' ratings in mining industry, based on political and economic risk; and
- The *fifth* and last criterion is the gold, copper and coal production trends. This criterion was included because Pakistan has the world's sixth-largest undeveloped coal resource, and the country has significant gold and copper potential.

4.2 Evaluation of Country Economic and Political Risk for International Investors (Moody's Rating)

Political instability and weakness is one of the major factors which refrain international investors from investing in a politically unstable country. Regulatory changes due to change of governments and policy is a concerning aspect which foreign investors take into account before investing in a politically unstable country. Breach of contract by the host country is

another concern which obstructs foreign direct investment in a politically unstable country. Unfortunately, Pakistan's political system has never matured. Sixty-seven years after independence included thirty-three years of military governments in one form or the other (Rizvi, 2011)[12]. This switch in governance between military and politicians has never allowed the system to mature and provide required confidence for investors.

Moody's credit rating is a measure of a country's ability to repay its international debt. It evaluates the ability of policies in place in a country that ensure borrowings by a country are repaid in time (Moody's, 2014). A complete system is in place to calculate the willingness and capacity of these obligations, and there are several rating agencies which rate the credit worthiness of a country (Moody's, 2014). These agencies include Moody's, Standard & Poor's, and Fitch Ratings. In this thesis, Moody's sovereign-state ratings were used in selecting which developing countries were best-suited for comparison to Pakistan.

4.2.1 **Moody's Investment grade ratings.** Moody's investment grades are a way to equip investors with a gauge to measure future relative-worthiness of countries (Moody's investor's service, 2009). Moody's provides ratings from A, Aa to Ca and C in a logical alphabetic order, appended by numerical 1, 2 and 3. The lower the number, the higher the rating. Moody's ratings are generally regarded as a suitable indicator to judge the political economy related to investment in a country.

4.2.2 **Moody's rating system.** Moody's ratings range from Aaa1 to C3, with -Aaa1 providing the most positive outlook and C3 is providing the most negative outlook. For the purpose of score calculations, each Moody rating has been allocated a score value in descending order (see Table 4.1).

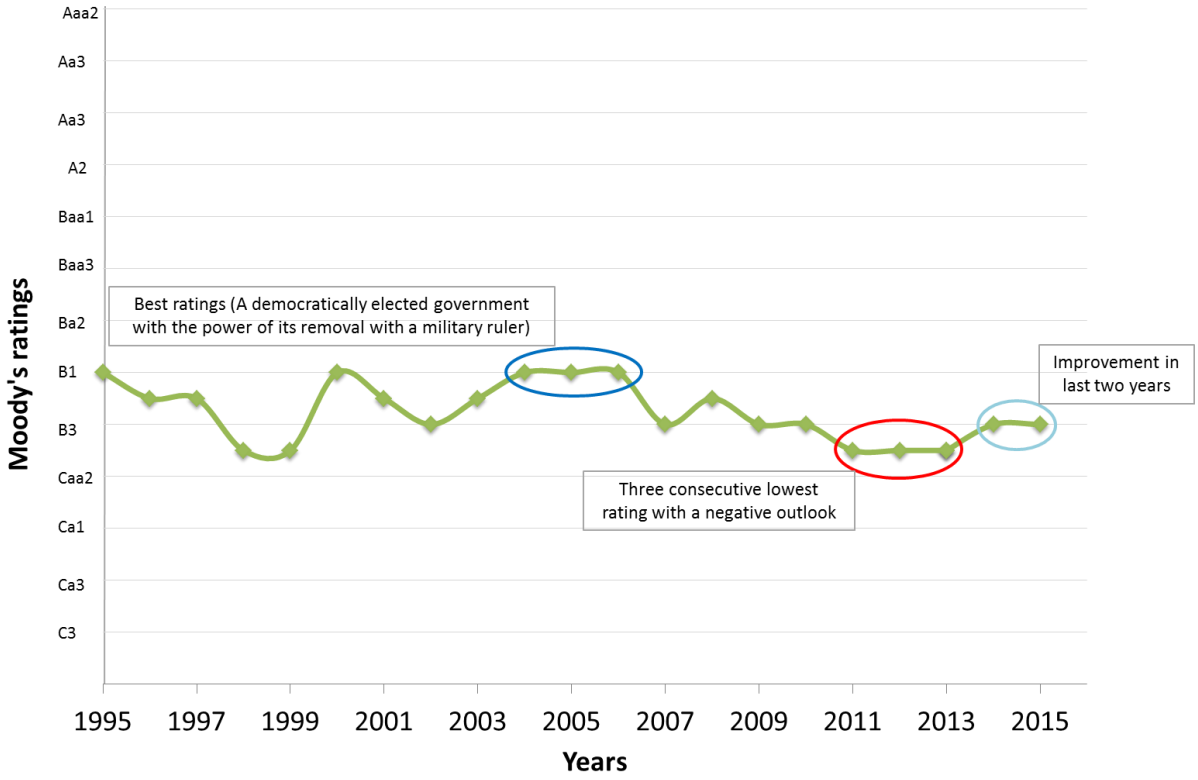
[12] Martial law by General Muhammad Ayub Khan from 1958-1969; martial law by General Yahya Khan from 1969-1971; martial law by General Zia Ul Haq from 1977-1988; and military-backed democracy by General Pervaiz Musharaf from 1999-2008.

Table 4.1 Assigning scores to Moody's ratings for ranking the countries.

S/No.	Rating		Score
1	Aaa	Aaa1	27
		Aaa2	26
		Aaa3	25
2	Aa	Aa1	24
		Aa2	23
		Aa3	22
3	A	A1	21
		A2	20
		A3	19
4	Baa	Baa1	18
		Baa2	17
		Baa3	16
5	Ba	Ba1	15
		Ba2	14
		Ba3	13
6	B	B1	12
		B2	11
		B3	10
7	Caa	Caa1	9
		Caa2	8
		Caa3	7
8	Ca	Ca1	6
		Ca2	5
		Ca3	4
9	C	C1	3
		C2	2
		C3	1

Source: Tradingeconomics.com, 2014

4.2.3 **Moody's ratings for Pakistan.** Initially since 1995, when the first National Mineral Policy (NMP-1) was formulated, Pakistan's rating was on a downward trend. Political instability is one of the major factors for declining trend in Moody's rating. Pakistan's most negative Caal outlook-ratings over the past five years were in 2011, 2012 and 2013 (see Figure 4.1). These were due to external loan repayment pressures, political weakness and a fragile security environment (Moody's, 2014) (Figure 4.1). Overall, Figure 4.1 shows a declining trend over the period 1995 to 2013, with the best ratings appearing in 2000, 2004, 2005 and 2006, when Pakistan had a political government headed by the military (International Monetary Fund, 2014).



Source: Moody's Investors Service, 2014

Figure 4.1 Pakistan's Moody's ratings from 1995-2014.

4.2.4 **Selection of developing countries based on Moody's ratings.** Developing countries[13] were ranked according to 2015 data from the Moody's investor's service (Table 4.2 and Table 4.3).

Table 4.2 Selected developing mineral-endowed countries according to Moody's ratings.

S No.	Country	Moody's Credit Rating	Outlook	Score	Selected countries
1	China	Aa3	Positive	22	✓
2	Botswana	A2	Negative	20	✓
3	South Africa	Baa1	Stable	18	✓
4	Brazil	Baa2	Positive	17	✓
5	Peru	Baa2	Positive	17	✓
6	India	Baa3	Stable	16	
7	Bolivia	Ba3	Positive	13	
8	Ghana	B1	Negative	12	
9	Mongolia	B1	Stable	12	
10	Ukraine	B2	Stable	11	

Source: Updated
Moody's Investors Service, 2014.

[13] Developing countries are as per the definition of the World Bank. (World Bank, 2015)

Table 4.3 Selected developing mineral countries with Islamic back-ground according to Moody's ratings.

S/ No.	Country	Moody's Credit Rating	Outlook	Score	Selected countries
1	Kazakhstan	Baa2	Stable	17	✓
2	Azerbaijan	Baa3	Positive	16	✓
3	Indonesia	Baa3	Stable	16	✓
4	Turkey	Ba1	Positive	15	
5	Egypt	B3	Negative	10	

Source: Updated
Moody's Investors Service, 2014.

4.3 Mining Countries Attractiveness (Behre Dolbear's Ranking)

4.3.1 **Behre Dolbear Group Inc.** Founded in 1911, Behre Dolbear Group Inc. is one of the oldest, constantly operating, mineral industry advisory firms in the world. Since 1999, the Behre Dolbear Group Inc. has started its own evaluation of mineral-based economies. . It advises its clients based on political-risk assessments of particular countries (Behre Dolbear, 2006). Behre Dolbear publishes its annual report "WHERE NOT TO INVEST" for the global mining industry (Behre Dolbear, 2014).

The Behre Dolbear ranking system is an advisory agency for the corporations, whether or not to invest in a particular country. The system of ranking is tough and favourable towards the needs of corporations, rather than states. The reason that this criterion was included in this thesis is that Pakistan will need international mining corporations to invest in its mining sector. Fulfilling Behre Dolbear's standards would attract large mining corporations to take interest and invest in Pakistan's mineral sector.

4.3.2 **Behre Dolbear's ranking system.** The ranking system of countries is qualitative, based on the experience of professionals at The Behre Dolbear Group of companies (Behre Dolbear, 2006). The ranking is based on seven criteria which were developed by its professionals and intellectuals from mining industry (Behre Dolbear, 2013). Each country is rated in each of the seven criteria, based on a scale of 1(worst) to 10 (best). Thus the highest

total that a country can gain for all criteria is 70 (Behre Dolbear, 2014). The seven criteria are:-

- The country's economic system;
- The country's political system;
- The country's social issues affecting mining in the country;
- Delays in the receiving permits due to bureaucratic and other delays;
- The degree of corruption prevalent in the country;
- The stability of the country's currency; and
- The competitiveness of the country's tax policy.

4.3.3 **Developing countries selected.** Based on Behre Dolbear's ranking system, developing countries were ranked according to 2014 data (Table 4.4 and Table 4.5).

Table 4.4 Behre Dolbear's rakings for developing mineral countries.

S/No.	Country	2015 Average Rating	Ranking	Selected countries
1	Chile	54.1	1	✓
2	Mexico	46.0	2	✓
3	Brazil	42.6	3	✓
4	Peru	42.3	4	✓
5	Botswana	41.6	5	✓
6	Namibia	38.6	6	
7	Ghana	38.2	7	
8	Colombia	37.7	8	
9	Tanzania	34.2	9	
10	South Africa	33.9	10	

Source: Updated
Behre Dolbear Group Inc, 2013.

Table 4.5 Behre Dolbear's rakings for developing mineral countries with Islamic back-ground.

S/No.	Country	2013 Average Rating	Ranking	Selected countries
1	Indonesia	28.1	1	✓
2	Kazakhstan	28.1	2	✓

Source: Updated
Behre Dolbear Group Inc, 2013.

4.4 Global Exploration Spending Patterns

Global exploration spending in a region or country is a direct indicator of a country's mineral potential and effectiveness of its mineral policy framework. By analysing these patterns one can establish where the leading mining companies are spending their exploration budgets (Metals Economics Group, 2013). This also helps in specifying developing countries whose mineral policies are exploration-friendly and attractive to foreign investments.

4.4.1 **Data source.** Exploration Review for World Exploration Expenditure, published by United States geological survey (USGS) for 2013, was analysed in this thesis, based on countries that attracted major world exploration expenditure. The report was published as annual review 2013 in Journal of Mining Engineering (Wilburn, 2013). The information sources include (U.S. Geological Survey, 2013):-

- Budgetary statistics compiled by Metals Economic Group (MEG);
- Regional and site specific mining exploration activities compiled by USGS; and
- Regional events that affected that exploration budget as derived from the discussions held by specialist of USGS.

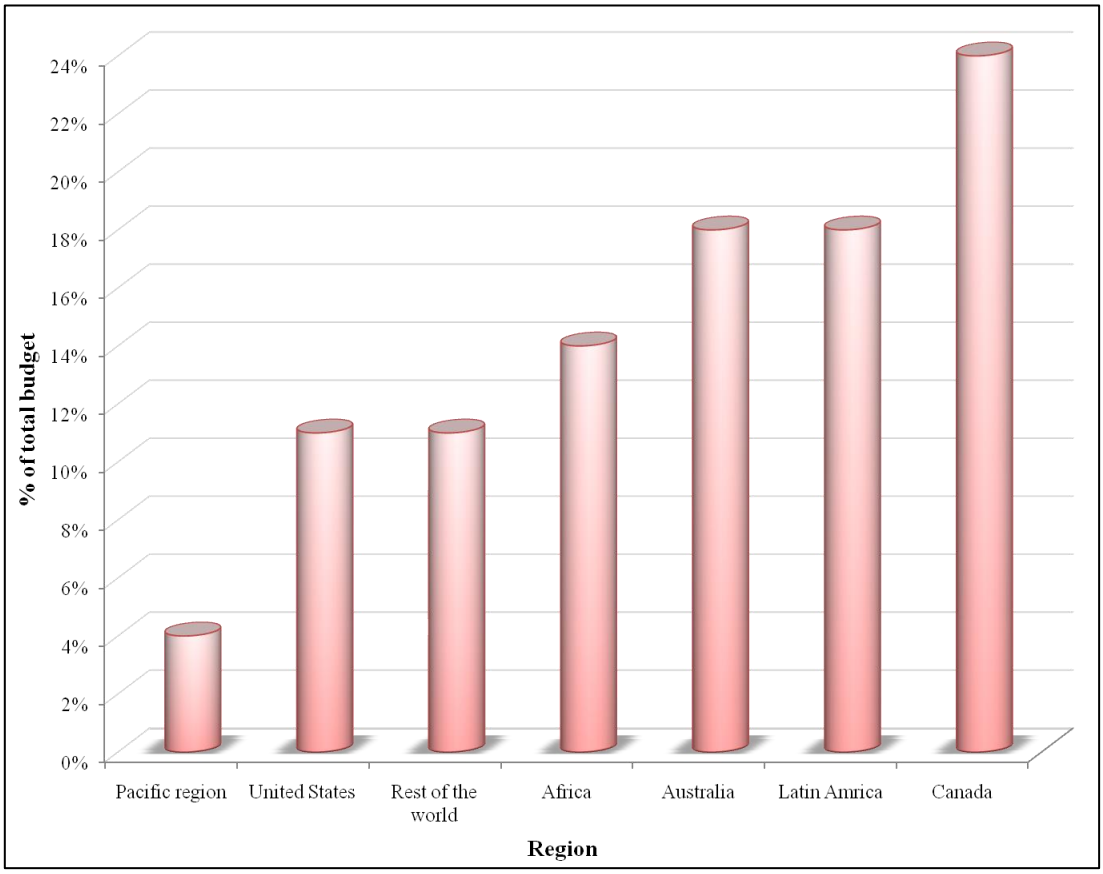
4.4.2 **World leading exploration spending patterns 2013.** MEG data, compiled by the USGS from original exploration budgets, reflect a pattern in budget-flow for 2013 (Metals Economics Group, 2013)[14]. Figure 4.2 indicates that the top six geographic locations (excluding the rest of World), in decreasing-order of exploration-budgets, were (U.S. Geological Survey, 2013):-

- Latin America 3.8 billion US$
- Africa 2.4 billion US$

[14] Latin America includes countries in the Caribbean, Central America, Mexico, and South America. The Pacific region includes Fiji, Indonesia, Japan, Laos, Malaysia, New Caledonia, New Zealand, Papua New Guinea, Philippines, Solomon Islands, Thailand, Vanuatu and Vietnam. Africa includes countries on the African continent. The rest of the world includes China, Europe, India and Pakistan, the Middle East and republics of the Commonwealth of Independent States. Australia, Canada and the United States are treated separately.

- Canada 1.9 billion US$
- Australia 1.95 billion US$
- United States 1.0 billion US$
- Pacific region 1.0 billion US$

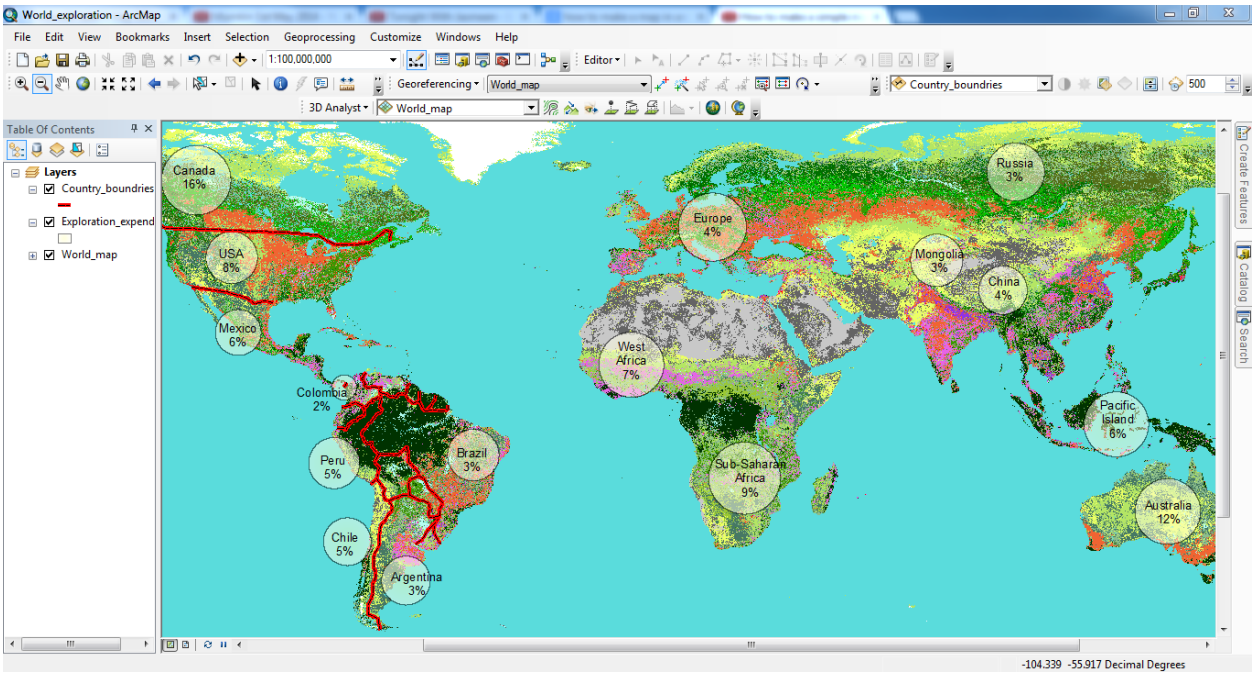
For the rest of the World, the largest exploration-budget expenditures, in decreasing order, were China and Russia. The combined exploration-budget expenditures for these countries (2.4 billion US$), accounted for about 58% of the rest of the world's total budget (U.S. Geological Survey, 2013). The exploration budget in 2013 in all regions was lower than the corresponding budget for 2012 (U.S. Geological Survey, 2013). The largest decrease was in Canada (41%) and United States (38%) and the smallest decrease was in Africa (25%) and Latin America (26%) (U.S. Geological Survey, 2013).



Source: SNL Metals & Mining, 2014

Figure 4.2 Planned worldwide exploration budget by region for 2013.

For 2013, USGS data was based on 1800 active exploration sites throughout the world, which included published literature, industry sources and USGS specialist working with different companies around the world (U.S. Geological Survey, 2013). The regional distribution is shown in an ArcGIS map (Figure 4.3) below, where Canada has the most active sites, followed by Latin America, USA and Africa.



Source: Updated
United States Geological Survey, 2014.

Figure 4.3 GIS map showing percent of global active mineral exploration sites by region in 2013.

4.4.3 **Developing countries selected.** Based on world leading exploration-spending patterns, developing countries were ranked according to 2013 data (Table 4.6 and Table 4.7).

Table 4.6 Planned worldwide exploration budget by region for 2013.

S/No.	Region	Regional share	Country/ geographic region	Country share
1	Latin America	26%	Mexico	6%
			Chile	6%
			Peru	5%
			Brazil	3%
			Argentina	3%
			Colombia	3%
2	Africa	14%	D.R. Congo	2%

			East Africa	3%
			West Africa	6%
			Southern Africa	3%
3	Canada	13%		
4	Eurasian Countries	15%	Europe (Finland & Turkey)	4%
			China	4%
			Mongolia & Kazakhstan	2%
			Russia	5%
5	Australia	13%		
6	United States	7%		
7	Pacific Islands	6%	Indonesia	2%
			Papua New Guinea	2%
			Philippines	2%
8	Rest of the world	6%		

Source: Updated
SNL Metals Economic Group, 2014.
United States Geological Survey, 2014.

Table 4.7 Ranking of developing countries based on planned worldwide exploration budget by region for 2013.

S/No.	Top 10 countries by share	Developing countries only	Developing countries with Islamic background
1	Canada	Mexico	Turkey
2	Australia	Chile	Kazakhstan
3	USA	Russia	Indonesia
4	Mexico	Peru	
5	Chile	China	
6	Russia	Brazil	
7	Peru	Argentina	
8	China		
9	Brazil		
10	Argentina		

Source: Updated
SNL Metals Economic Group, 2014.
United States Geological Survey, 2014.

The trend of South American countries topping emerging-country exploration-expenditure has continued for the last 3-4 years. This is understandable, as these countries have strengthened their legislation together with controlling their political systems and economies. Another reason is their close proximity to the USA, and the fact that the big mining companies from Canada and USA feel a closer link to these South American countries.

4.5 Emerging Mining Countries Rating by Alliant

4.5.1 **Alliant Emerging Markets ratings.** Founded in 1925, Alliant is one of USA's leading insurance brokers and risk advisors. Alliant provides a rating on structural risks faced by investors in 125 countries across the world (Alliant Insurance, 2014). The rating is based on quantitative risk-assessment models, where Alliant quantify the likelihood of specific risk and prevalent conditions in investment by company or country in any part of the world. Ratings use a 100 point scale reflecting the probability of a specific risk event in an investment (Alliant Insurance, 2013).

4.5.2 **Alliant political & economic risk analysis.** Mining is a global industry, and geological potential will always attract investment. However, the decision to undertake mining venture is dependent on that country's industry indices and ratings of political and economic risks. The emerging countries rating in the mining industry provides a simple answer to which is investment-friendly.

4.5.3 **Developing countries selected.** Based on Alliant political & economic risk analysis, developing countries were ranked according to 2013 data (Table 4.8).

Table 4.8 Alliant emerging markets ratings for developing countries for 2013.

S/No	Region	Alliant ratings	Country	Alliant ratings
1	Latin America	44.58	Chile	64.26
			Brazil	48.33
			Mexico	44.90
			Peru	38.30
2	Africa	29.54	South Africa	31.27
			D.R. Congo	21.12
3	Indonesia	19.44		

Source: Updated Alliant Insurance, 2013

4.6. Gold, Copper and Coal Production Trends

This criterion was selected because of the fact that Pakistan has undeveloped, 186 billion tonnes (sixth largest) coal resources of the world; 6,000 million tonnes of copper; and 1,656 million tonnes of gold (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

Production trends of these minerals indicate that countries like China, Russia, Peru, South Africa, Chile, and Kazakhstan have strengthened their legislation and controlled their political systems and economies to create an environment for investment.

4.6.1 **Gold production trend.** The estimated gold price in 2013 was 16% lower than the price in 2012 (U.S. Geological Survey, 2014). This was the first time the annual average gold price has decreased since 2001. In 2013, worldwide gold production was 3% more than that in 2012 owing to increases in production from Brazil, Canada, China, the Dominican Republic, and Russia (U.S. Geological Survey, 2014). There were production decreases in Peru, Tanzania, South Africa, and the United States. Gold production in China continued to increase, and the country remained the leading gold-producing nation, followed by Australia, the United States, Russia, Peru, and South Africa (U.S. Geological Survey, 2014)

4.6.2 **World gold production.**

Table 4.9 World gold production for 2013 in developing countries.

S/No.	Country	Production (Data in tonnes)	Selected countries
1	China	420	✓
2	Russia	220	✓
3	Peru	150	✓
4	South Africa	145	✓
5	Mexico	100	✓
6	Ghana	85	
7	Papua New Guinea	62	
8	Chile	55	
9	Brazil	75	
10	Other countries	7,00	

Source: United States Geological Survey, 2014.

Table 4.10 World gold production for 2013 in developing countries with Islamic back-ground.

S/No.	Country	Production (Data in tonnes)	Selected countries
1	Indonesia	60	✓
2	Uzbekistan	93	✓

Source: United States Geological Survey, 2014.

4.6.3 **Copper production trend.** Copper is one of the most important minerals in the world, and its demand is growing. The world usage of copper has tripled in the last 50 years as global demand for copper continues to grow (International Copper Study Group, 2014).

4.6.4 **World copper production.**

Table 4.11 World copper production for 2013 in developing countries.

S/No.	Country	Production (Data in thousand tonnes)	Selected countries
1	Chile	5,700	✓
2	China	1,650	✓
3	Peru	1,300	✓
4	Russia	930	✓
5	DRC	900	✓
6	Zambia	830	
7	Mexico	480	
8	Poland	430	
9	Other countries	2,000	

Source: United States Geological Survey, 2014.

Table 4.12 World copper production for 2013 in developing countries with Islamic back-ground.

S/No.	Country	Production (Data in thousand tonnes)	Selected countries
1	Kazakhstan	440	✓
2	Indonesia	380	✓

Source: United States Geological Survey, 2014.

4.6.5 **Coal production trend.** There are over 860 billion tonnes of proven coal reserves worldwide and Thar coal reserves are the world's sixth largest, with 186 billion tonnes (World coal association, 2014). Coal provides around 30.1% of global primary energy needs, generates over 40% of the world's electricity and is used in the production of 70% of the world's steel (World Coal Institute, 2014). China produces almost half of the world's total coal, three times more than the United States, the world's second-largest producer (U.S. Energy Information Administration, 2014).

4.6.6 **World Coal Production.**

Table 4.13 World coal production for 2013 in developing countries.

S/No	Country	Production (Million tonnes)	Share of total %	Selected countries
1	China	3,650	46.6	✓
2	India	605.8	7.7	✓
3	Russia	354.8	4.5	✓
4	South Africa	260.0	3.3	✓
5	Poland	144.1	1.8	✓
6	Colombia	89.2	1.1	-
7	Ukraine	88.2	1.1	-
8	Greece	60.4	0.8	-
9	Czech Republic	55.0	0.7	-
10	World	7,864.7	-	-

Source:
World Coal Association, 2014
World Coal Institute, 2014
U.S. Energy Information Administration, 2014

Table 4.14 World coal production for 2013 in developing countries with Islamic back-ground.

S/No.	Country	Production (Data in million tonnes)	Share of total %	Selected countries
1	Indonesia	386.0	4.9	✓
2	Kazakhstan	116.4	1.5	✓
3	Turkey	72.0	0.9	✓

Source:
World coal association, 2014.
World coal institute, 2014.
U.S. Energy Information Administration, 2014.

4.6.7 **Selection of countries from this criterion.** Weighted values were assigned to gold, copper and coal to select country for analysis from this criterion. These weighted values show relative importance of each mineral commodity. The larger the weighted value, the more important is the mineral commodity in the overall context of weighing.

4.6.8 **Ratio estimation method of assigning weighted values of importance.** In table 4.15, an arbitrary weighted value of 100 was assigned to the most important criterion. Proportionately smaller weighted values were then given to criteria lower in the order. The procedure was continued until a weighted value was assigned to the least important criterion which was then taken as an anchor point for calculating the ratios. Weighted value of each

criterion was then divided by the least important criterion's weighted value. The latter results were then normalized by dividing each of them by the total of all of them (Malczewski, 1999) and (Ehrgott, Figueira and Greco, 2010).

Table 4.15 Weight ratio estimation procedure for gold, copper and coal.

S/No.	Criteria	Ratio scale	Original weights (Ratio scale/10)	Normalized weights (Original weights/∑ Original weights)
1	Coal	100	2.0	0.444
2	Gold	50	1.0	0.222
3	Copper	75	1.5	0.333
			4.5	1.0

Source: Updated
Hillier, 2006

Table 4.16 Selection of developing countries based on weight ratio estimation procedure for gold, copper and coal.

Gold, Copper and Coal production trends												
	Gold			Copper			Coal			Total weighted Score	Overall rank	Overall Score
	Rank	Score	Weighted score	Rank	Score	Weighted score	Rank	Score	Weighted score			
China	1	5	1.111	2	4	1.332	1	5	2.222	4.665	1	5
Russia	2	4	0.888	4	2	0.666	3	3	1.332	2.886	2	4
Peru	3	3	0.666	3	3	0.999	-	-	-	1.665	5	1
South Africa	4	2	0.444	-	-	-	4	2	0.888	1.332	-	-
Mexico	5	1	0.222	--	-	-	-	-	-	0.222	-	-
Chile	-	-	-	1	5	1.665	-	-	-	1.665	4	2
DRC				5	1	0.333	-	-	-	0.333	-	-
India	-	-	-	-	-	-	2	4	1.776	1.776	3	3
Poland	-	-	-	-	-	-	5	1	0.444	0.444	-	-
Countries with Islamic background												
Indonesia	1	5	1.111	2	4	1.332	1	5	2.222	4.665	1	5
Uzbekistan	2	4	0.888	-	-	-	-	-	-	0.888	3	3
Kazakhstan	-	-	-	1	5	1.665	2	4	1.776	3.441	2	4

Source: Updated
United States Geological Survey, 2014.
World coal association, 2014
World coal institute, 2014
U.S. Energy Information Administration, 2014

4.7 **Selection of Countries based on Five Criteria**

For selection of the countries, weighted values were again assigned to each criterion. These weighted values indicate relative importance of each criterion against others. The larger the weighted value's ratio, the more important is the criterion in the overall context of weighing.

Table 4.17 Weight ratio estimation procedure for selection criteria.

S/No.	Criteria	Ratio scale	Original weights (Ratio scale/10)	Normalized weights (Original weights/∑ Original weights)
1	Evaluation of country economic and political risk for international investors (Moody's rating)	25	1	0.029
2	Mining countries attractiveness (Behre Dolbear's ranking)	50	2	0.142
3	World leading exploration spending patterns	100	4	0.285
4	Emerging mining countries rating by Alliant	75	3	0.214
5	Gold, copper and coal production trends	100	4	0.285
			14	1.0

Source: Updated
Hillier, 2006

Table 4.18 Selection of developing countries based on weight ratio estimation procedure for comparison with Pakistan.

	Moody's rating		Mining countries attractiveness		World leading exploration spending patterns		Emerging countries rating		Gold, Copper and Coal production trends		Total weighted score	Final rank
	Score	Weighted score (Score x 0.0.29)	Score	Weighted score (Score x 0.142)	Score	Weighted score (Score X 0.285)	Score	Weighted score (Score x 0.214)	Score	Weighted score (Score x 0.285)		
China	5	0.145	-	-	1	0.285	-	-	5	1.425	1.855	4
Botswana	4	0.116	1	0.142	-	-	-	-	-	-	0.258	10
South Africa	3	0.087	-	1	-	-	1	0.214	-	-	0.301	8
Brazil	2	0.058	3	0.426	-	-	4	0.856	-	-	1.340	6
Peru	1	0.029	2	0.284	2	0.570	2	0.428	1	0.285	1.596	5
Mexico	-	-	4	0.568	5	1.425	3	0.642			2.635	2
Colombia	-	-	2	0.284	-	-	-	-	-	-	0.284	9
Russia	-	-	-	-	3	0.855	-	-	4	1.140	1.995	3
Chile	-	-	5	0.170	5	1.140	5	1.070	2	0.570	3.490	1
India	-	-	-	-	-	-	-	-	3	0.855	0.855	7

Sources: Updated
Moody's Investors Service (2013).
Behre Dolbear Group Inc (2013).
SNL Metals Economic Group, 2013.
United States Geological Survey, 2013.
Alliant Insurance 2013.
United States Geological Survey, 2014.
World Coal Association, 2014.
World Coal Institute, 2014.
U.S. Energy Information Administration, 2014.

Table 4.19 Selection of developing countries with Islamic back-ground based on weight ratio estimation procedure for comparison with Pakistan.

	Moody's rating		Mining countries attractiveness		World leading exploration spending patterns		Emerging countries rating		Gold , Copper and Coal production trends		Total weighted score	Final rank
	Score	Weighted score (Score x 0.029)	Score	Weighted score (Score x 0.142)	Score	Weighted score (Score X 0.285)	Score	Weighted score (Score x 0.214)	Score	Weighted score (Score x 0.285)		
Kazakhstan	5	0.145	4	0.568	4	1.140	-	-	4	1.140	2.993	2
Azerbaijan	4	0.116	-	-	-	-	-	-	-		0.116	5
Indonesia	3	0.087	3	0.710	3	0.855	5	1.070	5	1.425	4.147	1
Turkey	2	0.058	-	-	5	1.425	-	-	-	-	1.483	3
Egypt	1	0.029	-	-	-	-	-	-	-	-	0.029	6
Uzbekistan	-	-	-	-	-	-	-	-	3	0.855	0.855	4

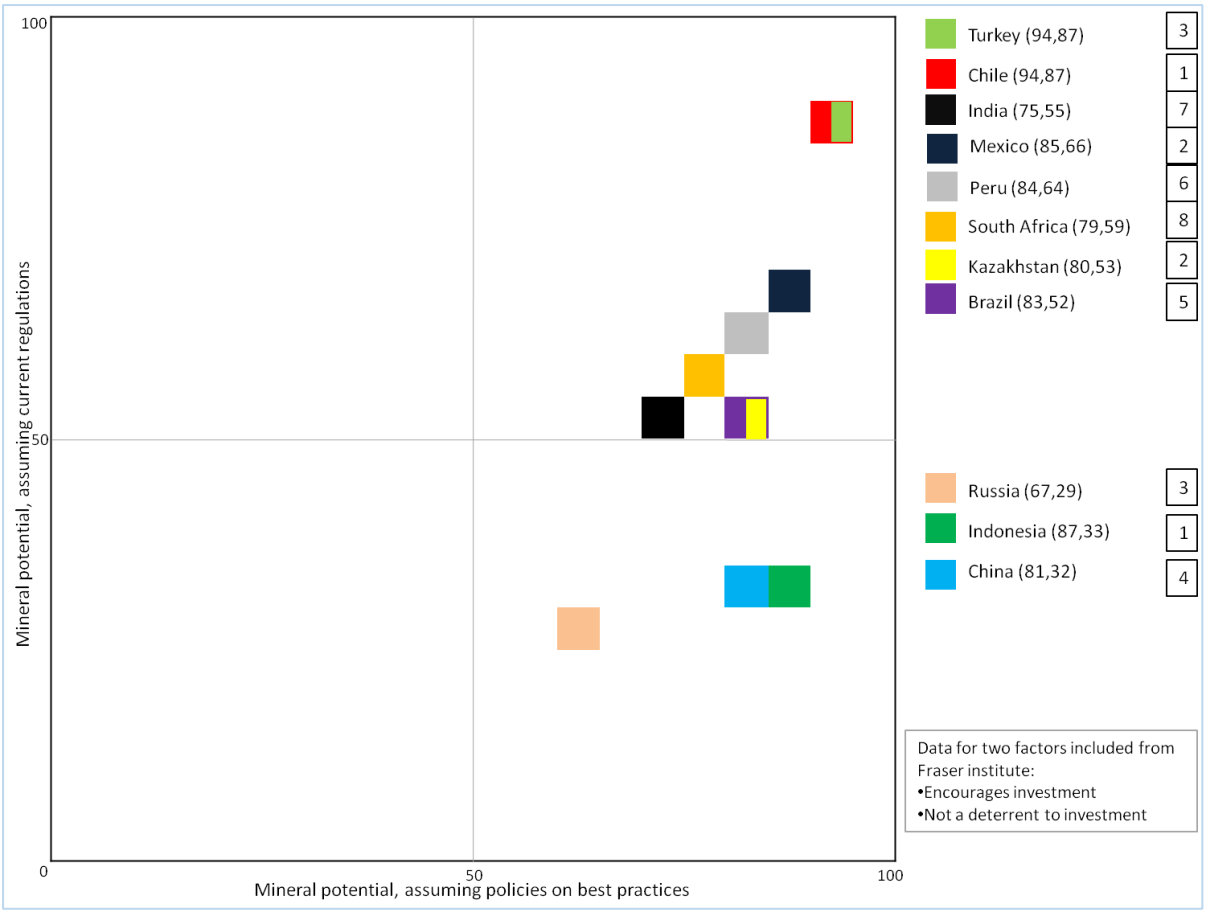
Sources: Updated
Moody's Investors Service 2013
Behre Dolbear Group Inc 2013
SNL Metals Economic Group, 2013
United States Geological Survey, 2013
Alliant Insurance 2013
United States Geological Survey, 2014
World coal association, 2014
World coal institute, 2014
U.S. Energy Information Administration, 2014

4.8 **Final Selection of Countries**

Before finally selecting the countries for comparison with Pakistan, the sixteen identified countries (ten developing and six Islamic developing countries) were evaluated against the Fraser Institute survey ranking for 2013. Founded in 1974, the Fraser Institute is an independent research and educational organization (Fraser Institute, 2014). Since 1997, it has

conducted an independent annual survey of mining and exploration companies to assess mineral endowments and public policy factors affecting exploration investment. It is a qualitative survey capturing opinion of the companies about policy barriers of investments in a particular country. The survey evaluates seventeen policy factors and the respondent is required to answer from five graded responses (Fraser institute, 2014). The policy potential index (PPI) is calculated for both *'mineral potential assuming best practice policies'* and *'mineral potential assuming current regulations'* (Fraser Institute, 2014). Figure 4.4 illustrates these factors for the countries selected earlier. This evaluation was done for first eight developing and first three Islamic developing countries.

Since the fundamental objective of this research is to take a stock of the mineral policy of Pakistan given its mineral endowment, the Fraser Institute Survey has been chosen as best-criterion for selecting countries comparable to Pakistan. The survey is used as a final filter because it attempts to assess how mineral endowments and public policy factors such as taxation and regulatory uncertainty affect exploration investment.



Source: Updated
Fraser Institute, 2014

Figure 4.4 Evaluation of selected developing countries according to Fraser institute survey.

All the eleven countries selected were above 75% in mining potential, assuming policies are best practices (Figure 4.4). However, three countries, namely Russia, China and Indonesia, were below 50% as a result of current regulations, and hence, were dropped from the final list of selected developing countries. The final list of selected developing countries is:-

- Chile
- Mexico
- Brazil
- Peru
- India
- South Africa

And selected developing-countries with Islamic back-ground are:-

- Kazakhstan
- Turkey

4.9 **Conclusion**

Chapter four discussed the criteria for selecting developing countries for comparison with Pakistan. These criteria were carefully selected keeping in mind Pakistan's political, economic and security situation. These criteria were weighted to select countries as every criterion could not be weighted equally. Since Sharia Law has far-reaching effects on foreign direct investment a separate ranking was done for developing countries with Islamic principles. Selected countries were then filtered through the Fraser Institute survey for 2013 to select the final eight countries for analysis in the next chapter.

Chapter five will examine the political economy of the selected developing countries. It will also discuss the different stages of development and components of a successful mineral policy. Finally the chapter will give a detailed account of the implementation plan of each mineral policy for the selected countries.

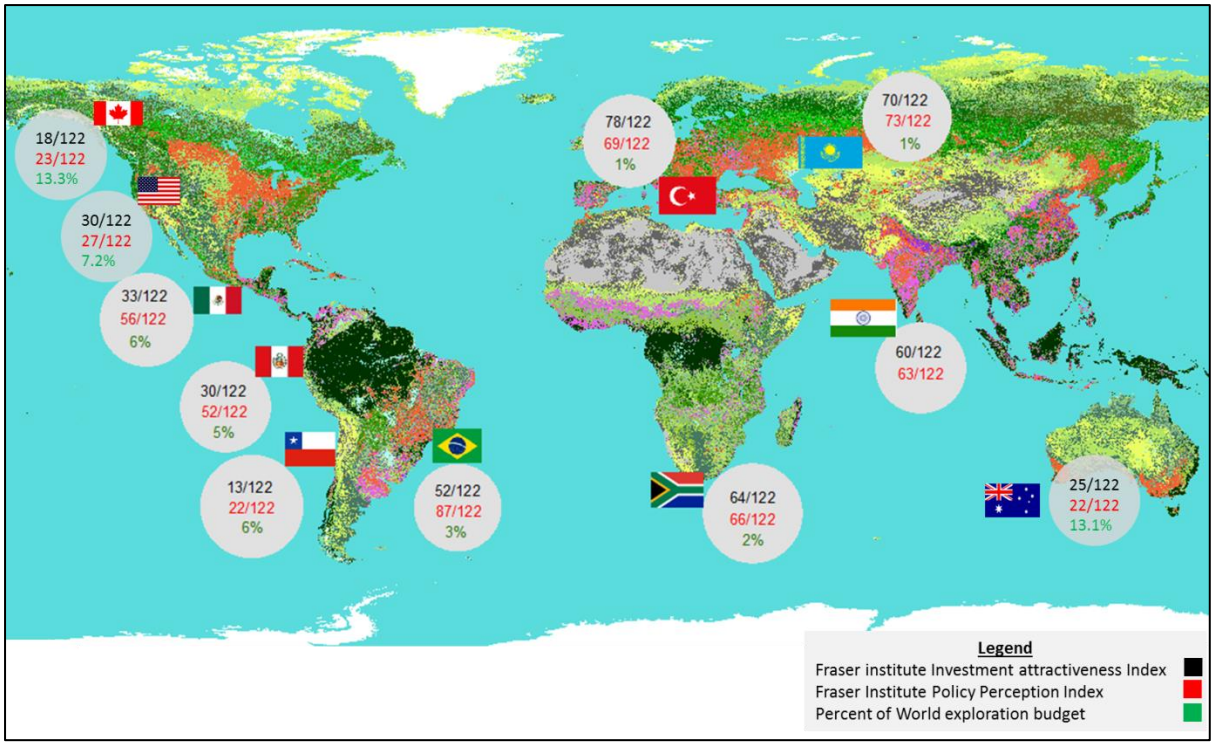
CHAPTER FIVE

POLICY ANALYSIS OF SELECTED COUNTRIES

5.1 Introduction

The last two decades have seen a significant shift in the investment practices of mining companies across the world. The investment has largely shifted from the global north to more-dispersed developing countries in the South. This shift in mining capital into the developing world is due to specific mining laws geared towards attracting mineral investment (Dougherty, 2011).

Chapter four highlighted five key policy elements that are critical for any country to develop its mineral policy. These are: political stability; economic situation and reforms; legal framework of the country; regulatory framework for mining operations; taxation system. The eight countries which will be analysed are: Chile; Peru; Brazil; Mexico; India; South Africa; Kazakhstan; Turkey. The map in Figure 5.1 shows mining exploration investment across the world. It is clear from the map that most exploration is in the developing countries.



Source: Updated
Fraser Institute, 2014
SNL Metals Economic Group, 2013
United States Geological Survey, 2013

Figure 5.1 GIS map showing Fraser Institute investment attractive index, Policy perception index and per cent of World exploration budget for eight selected countries.

5.2 **Chile**

During the early 1970's the Chileans decided on a paradigm shift from a socialist economic environment to a more vibrant free-market economy (Taylor, 1998). In 1974, the Chilean government introduced the *Foreign Investment Statute* (Decree-Law 600), for guarantees between the foreign investors and the Chilean State. This law ensured free repatriation of profits and capital, tax stability and non-discrimination against foreign investors (Foreign Investment Committee Republic of Chile, 1993). The Chilean economic model was based on three basic principles, namely: free market economy; respect of property rights; and supporting role of the state (Brown, 1995).

5.2.1 **Legal framework.** The changes also affected the mining sector. The new mining laws were not isolated measures but were integrated with the emerging economic policy in the country. The main features of the new mining laws were based on two basic laws, namely the *Organic Constitutional Law on Mining Concessions* (1982) and the *Mining Code* (1983) (Government of the Republic of Chile, 1982). The changes to the Chilean model resulted in a swift transformation of the country's economy. The Chilean economy attracted US$ 37,750 million in mining foreign investment from 1974 to 2003 (Chilean Copper Commission, 2003).

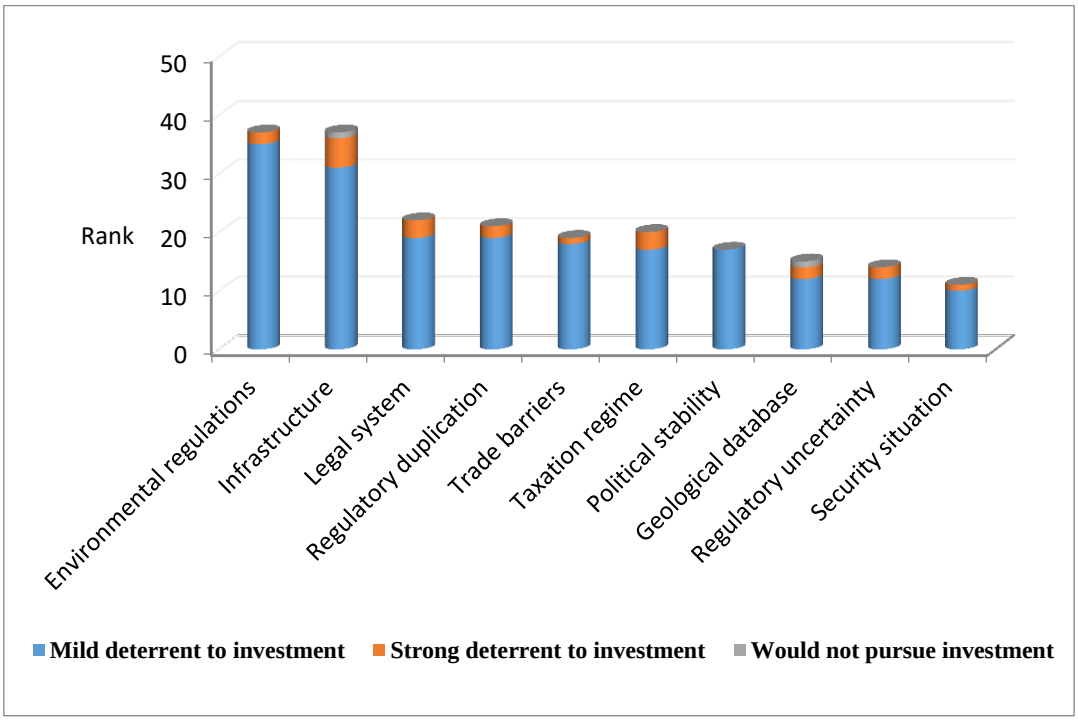
5.2.2 **Regulatory framework.** The Ministry of Mining is the responsible governmental body to regulate mining operations in Chile. The Chilean mining sector is regulated by the mining code, which also governs the concessions to mining companies. There is also a Foreign Investment Statute, which is a progressive instrument to attract foreign investments in the mining sector. All mineral resources are the property of the State as per Chilean law (Government of the Republic of Chile, 1982). According to the Mining law, the owner of the mining property has the right to protect these rights against another individual or against the State.

5.2.3 **Mining royalties and taxation.** The fiscal regime of Chile has remained stable since its inception. This is probably the most important factor that has contributed to the significant foreign investment in the mining sector. In 2005, the Chilean government intended to introduce a 3% royalty on all mining companies (International Development Research Centre, 2010). This law was debated and rejected by the Congress which argued that the royalty would question the very basic structure of the fiscal system of Chile, which guaranteed stability, non-discrimination and neutrality. The government however amended the Bill and levied an annual tax of 5% of operational profit of mining companies with an

annual output of 50,000 tonnes of mineral (International Development Research Centre, 2010). Other taxes and fees imposed on companies operating in the mining sector include:-

- Corporate income tax @ 20 %[15].
- Specific Mining Tax (SMT) @ 14 %[16] , depending on the mineral resource.

5.2.4 **Fraser Institute rankings.** The Fraser Institute annual survey of mining companies represents the results of a survey for mining and exploration companies. The survey shows how mineral endowment and mineral policy factors affect exploration investment (Fraser Institute, 2014). Environmental regulations were ranked as the worst jurisdiction by the corporations to do business in Chile, due to the uncertainty of court's interpretation of environmental laws. Chile was ranked high by the corporations in security situation, regulatory uncertainty and geological database (Figure 5.2).



Source: Fraser institute, 2014

Figure 5.2 Fraser Institute 2013 survey results[17] for Chile.

[15]The Corporate Income Tax rate was raised from 17% to 20% during the fiscal year 2011.
[16]The Specific Mining Tax regime may not apply to foreign investors that had signed foreign investment contracts with the Chilean Government under Decree Law 600 including mining tax invariability.

A high ranking (lower towers in Figure 5.2) in the survey is a clear indication of a comparatively good mineral policy framework and regulating bodies.

5.3 **Mexico**

Mexico is a federal republic where the President is the Head of the government. Mexico has 31 States and a Federal district, which constitute its administrative divisions. Each State is considered a sovereign entity and is free to make its own constitution, with which it can govern its relations with other Mexican states but not with other countries (United Mexican States, 1917). Mexico has a free market economy which is primarily dominated by the private sector. Currently, Mexico has the second largest national economy in Latin America. Mexico's economy has transformed after 1985, when it first joined the World Trade Organization and then in 1994 became a member of the North American Free Trade Agreement (NAFTA) (Domínguez, 1995).

5.3.1 **Legal framework.** The mining laws in Mexico have changed over the years from the original *Mining Law of 1961*. According to the 1961 mining law, a minimum 51 percent national-ownership was mandatory for every mining company (Sanchez and Mejorada V., 2000). This law caused many mining companies to either sell their shares or re-register themselves as Mexican mining companies.

In the 1980s, the Mexican government launched major economic changes, which continued for the next decades. To some context, the mining regulatory framework was also simplified

[17] The Fraser Institute conducts an annual survey of mining companies since 1997. The graph indicates opinions of managers and executives regarding the level of investment barriers in jurisdictions in which their companies were familiar. They were required to choose from three fundamental questions, namely, would not peruse investment; strong deterrent to investment; and mild deterrent to investment. They were asked to indicate how each of the 15 policy-factors influences company decisions to invest in various jurisdictions. Here, only 10 important policy factors were statistically analysed namely: uncertainties in environmental regulations; infrastructure; legal system; regulatory duplication; trade barriers; taxation regime; political stability; geological geodatabase; regulatory uncertainty; and security situation.

to attract foreign investments. During the reforms, the mandatory Mexican ownership of mining companies was removed (Sanchez, 2000).

5.3.2 **Regulatory framework.** All mining activities in Mexico are regulated by the *Mexican Mining Law of 1992*. The 1992 Mining Law defines all minerals in Mexico to be the property of the State. Private parties may develop these minerals (except oil and nuclear fuel minerals) through a concession granted by the Federal government (Rankine, 1992).

The Ministry of the Economy exercises its authority on mining companies through General Coordination of Mines, which in turn relies on the General Bureau of Mines. The Bureau, through its various subordinate agencies, administers the country's mining law, with respect to concessions, allotments, and national mining reserves.

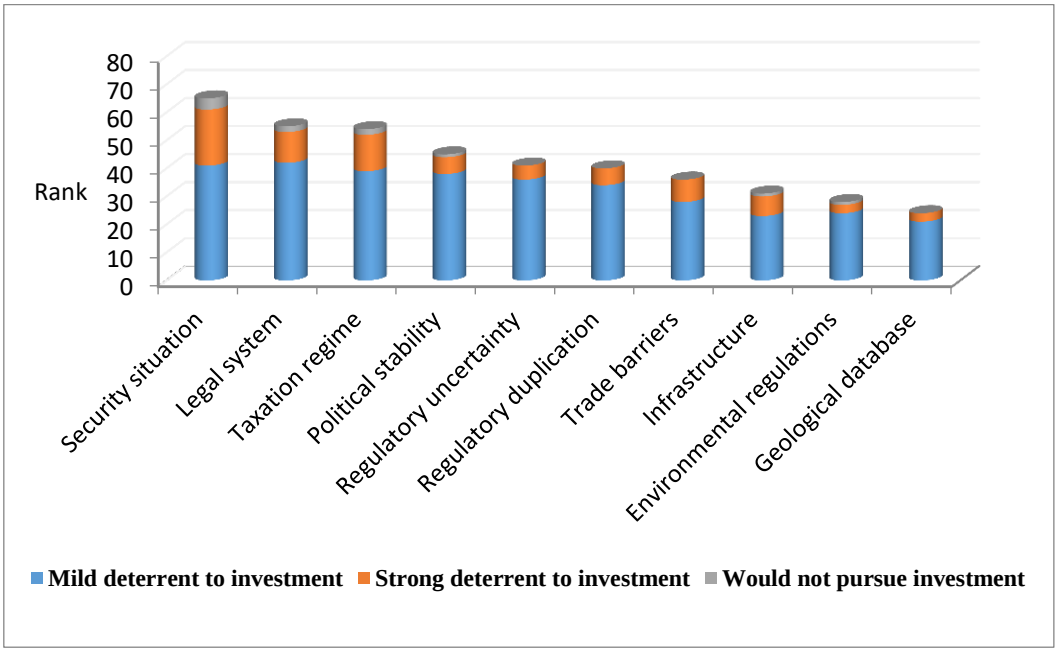
5.3.3 **Mining royalties and taxation.** The Mexican tax regime treats mining in the same manner as other sectors. Mexico does not have any specific tax on mining operations (Tetreault, 2014). All the mining-specific royalties and taxes were revoked in the 1990s to attract international investment in the mining industry. The only special tax payment for mining is the *"Duty on Mining Concessions"* that depends on the area held in concession and the number of years the concession is in effect.

Under the current mining law and tax legislation in Mexico, companies are subject to the following taxes:-

- Corporate Income Tax (IT). This tax is decreasing every year at the rate of 1 % starting at 30 % for 2011-2013[18];
- Flat rate business tax @ 17.5 % since 2011; and
- Employee statutory profit sharing (ESPS) at a rate of 10 %.

[18]29 percent for 2014, 28 percent in 2015 and going forward.

5.3.4 **Fraser Institute rankings for Mexico – 2014.** Mexico's Fraser Institute ratings for the 2014 are shown in Figure 5.3 (Fraser Institute, 2014). The security situation of the country was ranked worst by the corporations to do business in Mexico, whereas geological database was ranked the best jurisdiction (Figure 5.3).



Source: Fraser institute, 2014

Figure 5.3 Fraser institute annual survey results for Mexico.

5.4 Brazil

Brazil is a Federal Republic, where the President is the Head of the State and the government (Ministry of Justice, Brazil, 1988). Brazil has 26 States in its federal district, which constitute its administrative divisions[19]. Brazil returned to democracy in 1985 and launched comprehensive macroeconomic policy reforms by 1990. These reforms subsequently transformed Brazil into one of the world's most successful market economies. Brazil today enjoys low formal sector unemployment, low budget deficits, manageable inflation and steady economic growth (Heise, 2012).

[19]Worldvision.com.au, 2015

5.4.1 **Legal framework.** The *Mining Code (Act No. 227) of 1967* governs mining operations in Brazil (Nogueira da Costa, 2010). The Mining Code was amended in 1996 to provide a favourable environment for foreign investment in the mining sector. According to *Article 176 of the Brazilian Federal Constitution of 1988*, all minerals located within the Brazilian territory belong to the Federal Government, whether these involve mining production or not (Ministry of Justice, Brazil, 1988).

5.4.2 **Regulatory framework.** The jurisdiction and approval process for mining concessions is divided among three entities, namely Municipal, State, and Federal government. At the federal level, there are three government agencies which deal with mining licenses. These are the Ministry of Mines and Energy (MME), the National Department of Mineral Production (DNPM) and the Geological Survey of Brazil (CPRM) (Nogueira da Costa, 2010). Exploration licenses for three years are granted by the DNPM and the mining concessions are then granted by the MME. The concessions are granted for the period till the mineral deposit is exhausted (Nogueira da Costa, 2010).

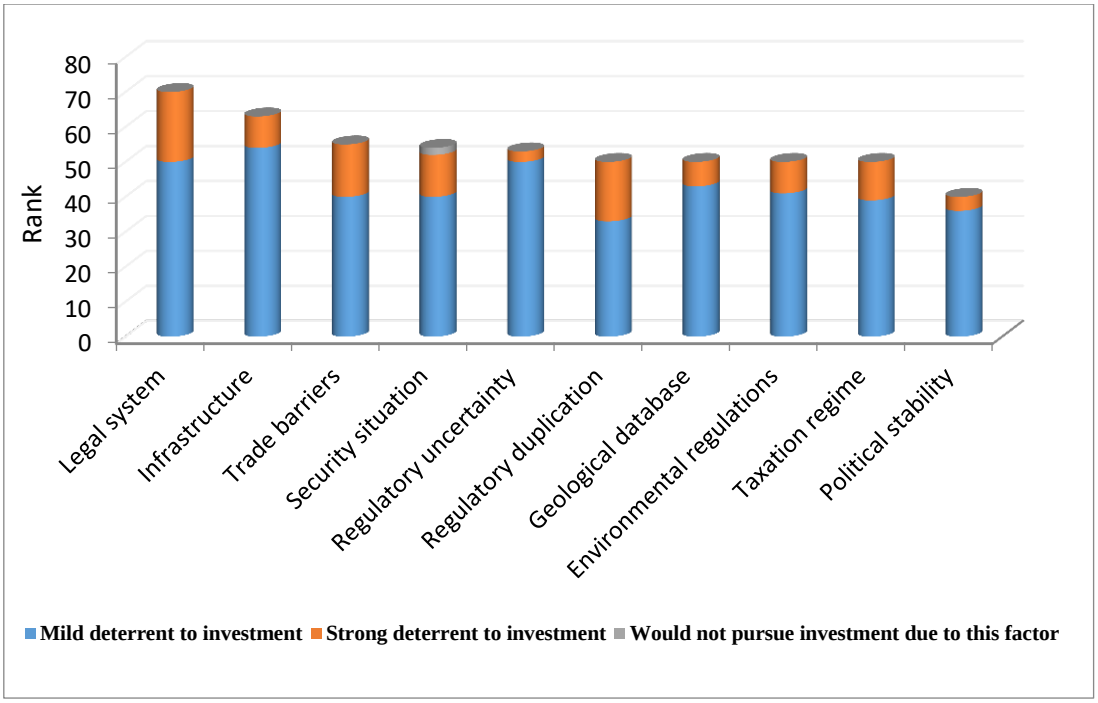
The Mining industry in Brazil is waiting for the approval of the *New Mining Framework (NMF) (Bill of Law No. 5807/2013)*[20] (Ministry of Mines and Energy, 2015). If approved, the new law will substantially change the current regime. It suggests the creation of a National Council for Mining Policy and a National Mining Agency (ANM). It will also bring changes into the system of mining royalties.[21]

5.4.3 **Mining royalties and taxation.** In Brazil, mining activities are subject to all main taxes applicable to other economic activities. There is also a charge levied on mining revenues related to exploration and financial return for exploitation of mineral resources. This tax is known as Compensation for Exploitation of Mineral Resources (CFEM) (Ministry of Mines and Energy, 2015). Under the NMF (if approved), the CFEM will substantially change

[20]The Government has submitted the Law to the National Congress and is currently under discussion.
[21]Suggested to be calculated on the gross revenue with a maximum rate of 4%.

the levy. First, it may be increased up to 4% and secondly, the tax basis will be calculated over the gross revenues, instead of the current net revenues.

5.4.4 **Fraser Institute rankings for Brazil – 2014.** Brazil's Fraser Institute ratings for the 2014 are shown in Figure 5.4 (Fraser Institute, 2014). The legal framework was a cause of concern for corporations and it ranked low in deterrence to investment. This uncertainty around the legal system was due to the fact that a new mineral code is in the process of making. The political stability of Brazil topped the ranking as the least deterrence to the investment by the corporations (Figure 5.4).



Source: Fraser institute, 2014

Figure 5.4 Fraser institute annual survey results for Brazil.

5.5 Peru

Peru is a Constitutional Republic, where the President is the Head of the State and the government. Peru has 25 regions and one province, which constitute its administrative divisions under civil law.[2223] Peru's economy is one of the best performing economies in

[22]Worldbank.org, 2015

Latin America. The country achieved an average GDP growth rate of 5.8 percent between 2002 and 2015 due to favourable macroeconomic policies (The World Bank, 2015). The country has a higher GDP than any of its Latin American neighbours.[24]

The pre-1990 era was based on the State-owned mining activities, which was in crisis by the end of 1980s (Bebbington et al., 2007). Like Chile, new policy in Peru resulted in a complete in the economics of the country. In 1990, Peru initiated a series of structural reforms with a fundamental principle to open the country's economic sector to foreign investment. Mining was part and parcel of this shift, mainly through privatization of State-owned mining enterprises (Perales P, 1994).

5.5.1 **Legal framework.** The Peruvian mining industry is regulated and governed by laws enacted by Peruvian Congress and the executive branch of the government. The *Mining Investment Promotion Law (MIPL) 1991* was enforced as an amendment to the *General Mining Law of 1981* (Olaechea, 1999). The promotion of investment in the mining sector was declared as national interest and top priority. All these amendments were consolidated in a single document of *General Mining Law of 1992* (Kamphuis, 2012).

The important items included in the new law are: Definition of the status of mineral rights; Functions and management of the Mining Cadastre; Simplification of the tributary regime; Implementation of the principle of non-export of taxes; Elimination of the discriminatory laws between national and foreign investments; and Flexible foreign exchange rate policies. By enacting these changes, the Peruvian government turned into an investment promoter and regulator as against previously being an active partner. Continuity of these reforms ensured strengthening of the government's balance sheet and fiscal framework. The effects of these

[23]Solutions, 2015
[24]Worldbank.org, 2015

reforms are evident from the constant upgrading of Peru's Moody's rating, which last year was further upgraded from Baa2 to A3 (Moody's Investor's Service, 2014).

5.5.2 **Regulatory framework.** The Ministry of Energy and Mines (MENIM) has the authority to regulate mining activities in Peru. This Ministry grants mining concessions to both local and foreign companies, through a body called The Institute of Geology Mining and Metallurgy (INGEMMET) (USAID, 2010). The INGEMMET grants four types of concessions according to Peruvian mining law, mining concession; production concession; general labour concession; and mining transport concession. Peru is ranked seventh in global exploration investment in 2013[25] which is a clear indication of the strength of its regulatory policies and bodies (Metals Economics Group, 2013) & (U.S. Geological Survey, 2013).

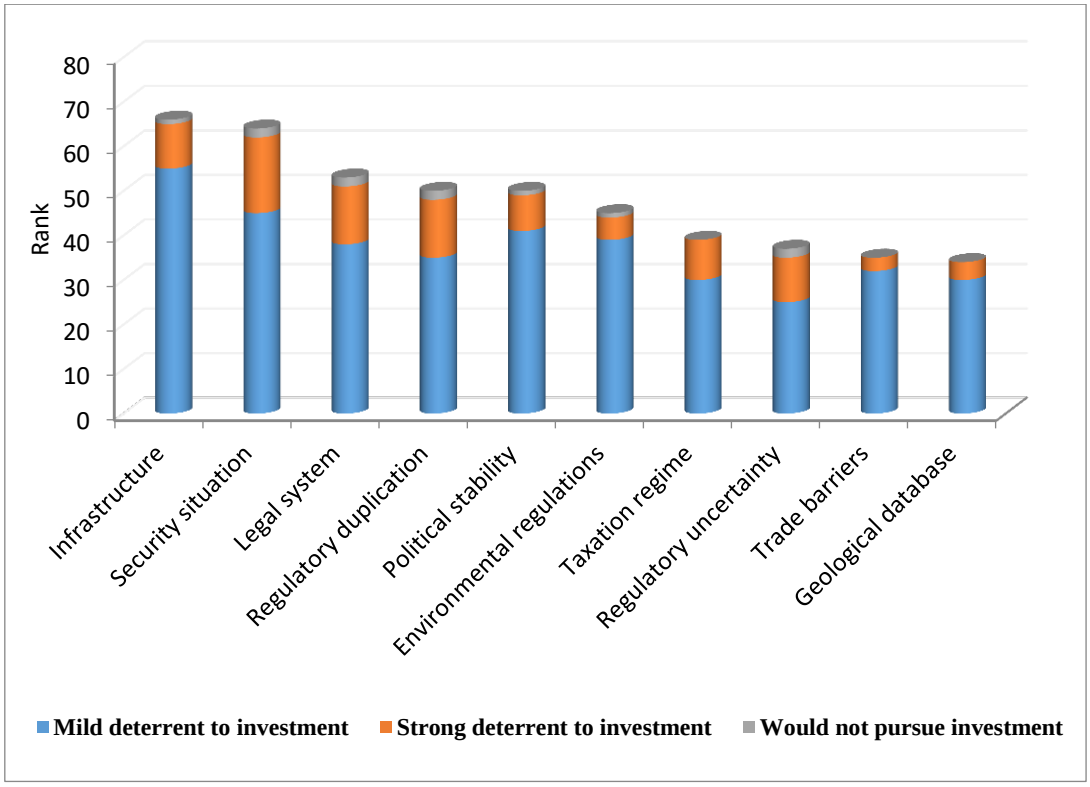
5.5.3 **Royalties and taxation.** The National Superintendence of Customs and Tax Administrations (SUNAT) collect and manage federal taxes in Peru. The municipalities levy and collect taxes in their jurisdictions. The taxes and fees imposed on companies operating in the mining sector include:-

- Corporate Income Tax @ 30 percent;
- Royalties @ 1% - 3%[26] (A list of royalty and taxes is given at Table 5.2);
- There is also a Special Mining Tax (SMT)[27], which is mining specific tax levied by the federal government; and
- Investors may conclude a tax law stability agreement with the Peruvian government.[28]

5.5.4 **Fraser Institute rankings.** Among the 144 countries covered in the Fraser Institute's Economic Freedom of the World 2013 Report,[29] Peru ranked 20th, with a score of 7.63 on a

[25]Peru was ranked seventh in the global exploration investments having received 5% of the total global share.
[26]Under the 2004 Mining Royalties Law, mining companies must pay a monthly royalty to the state for exploitation of resources based on sales.
[27]Tax applied as a marginal rate, from 2 percent to 8.4 percent, on operational profit.
[28]Tax stability would include taxes known as "impuestos" for a period of ten to fifteen years. No taxes created subsequently to the date of execution of the stability agreement shall be applicable.

scale of 10 (Gwartney, 2014). This rating is a direct indicator of sound economic policies and continuity of the fiscal regime. Peru's Fraser Institute ratings for the 2013 are shown in Figure 5.5 (Fraser Institute, 2014). Peru has an excellent (and automated) land tenure system; however it suffered in its infrastructure ranking, in which it was ranked 65 among other countries to do business with by the corporations (Figure 5.5).



Source: Fraser institute, 2014

Figure 5.5 Fraser institute 2013 survey results for Peru.

5.6 India

India has a population of a billion and a quarter people and is the world's largest democracy. India is a Federal Republic with a parliamentary form of government. The Prime Minister is the Head of the Cabinet and the government. India has twenty-six states and six centrally-administered Union Territories (Ministry of Law and Justice, India, 2007).

[29]Fraser Institute, 2014

India has emerged as a significant economic inspiration in the last decade. This was made possible by accelerated growth of the service sector. The Indian economy (from 1947 to 1991) was an inward-looking economy, where planning was done centrally (Zinkin, 1990). This model failed to take advantage of expansion of trade. This situation resulted in a fiscal crisis in 1991, which forced India to adopt free-market principles and liberalization of its economy to international trade (World Bank, 2014). Post economic liberalization period of the 1990's has seen the public sector grow at nearly 50% (Reserve Bank of India, 2013).

5.6.1 **Legal framework.** There are two categories under which the Indian legal system operates, *Indian Civil Law* and the *Criminal Law*. In India, the Central Government and the State Governments are both responsible for the management of mineral resources in terms of the *Seventh Schedule of the Constitution of India* (Ministry of Law and Justice, India, 2007). The *Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)*, lays down the legal framework for the regulation of mines and development of all minerals (Ministry of Mines, Government of India, 2008).

5.6.2 **Regulatory framework.** According to the *Mineral Concession Rule of 1960*, three types of concessions are granted, namely reconnaissance permits (RP), prospecting licences (PL) and mining leases (ML)[30] (Vivoda, 2011). The Central Government has also framed the *Mineral Conservation and Development Rules, 1988 (MCDR)*, for conservation and systematic development of minerals (Singh and Kalirajan, 2003).

5.6.3 **Mining royalties and taxation.** In India, the royalty rates were revised as and when deemed appropriate by the State until 1966. However, after 1966 a Royalty Study Group was constituted by the government to recommend updates to royalties (Chakraborty, 2014). The latest of such group was constituted in 2008, when they recommended the *Mines and*

[30]All minerals other than atomic minerals and minor minerals.

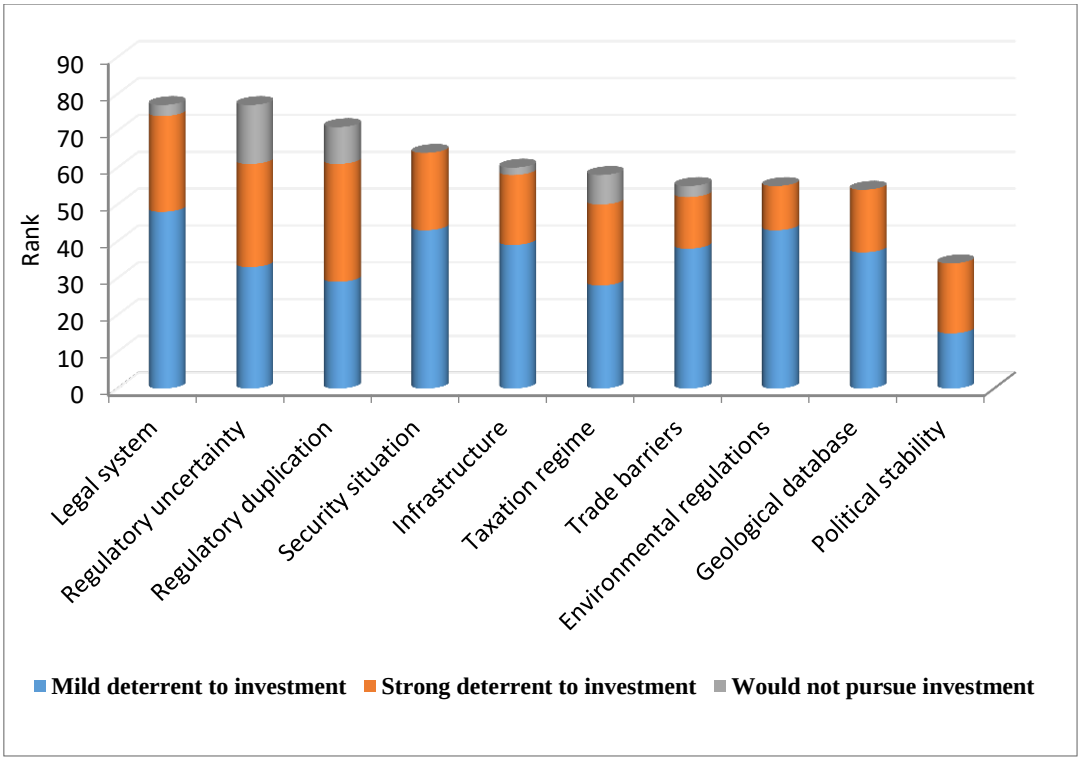
Minerals (Development and Regulation) Bill, which was approved in 2011 to replace the existing *MMDR Act, 1957* (Chakraborty, 2014).

Under the current mining law and tax legislation in India, companies are subject to the following taxes (Ministry of Mines, Government of India, 2013):-

- Corporate Income Tax @ 33.22%[31] for Indian Companies and 42.23%[32] for foreign Companies;
- Remittance tax of 0%[33] on dividends, 21.115%[34] on royalty and fee for technical services, and 42.23%[35] on other income; and
- A specific mining tax of which value varies according to the type of mineral, from 0.2% to 20%.[36]

5.6.4 **Fraser Institute rankings for India – 2014.** India's Fraser Institute ratings for the 2014 are shown in Figure 5.6 (Fraser Institute, 2014). Legal system was ranked as the worst jurisdiction by the corporations, whereas political stability was ranked as the best jurisdiction.

[31]The tax rate is applicable where taxable income exceeds INR 10 million, otherwise the tax rate is 30.9 %.
[32]The tax rate is applicable where taxable income exceeds INR 10 million, otherwise the tax rate is 41.2 %.
[33]On Dividend received from an Indian company. Non-mining dividend would attract a remittance tax of 21.115% (20% basic, 2.5% surcharge on basic, 3% on basic and surcharge).
[34]21.115% (20% basic, 2.5% surcharge on basic, 3% on basic and surcharge).
[35]Excluding tax on transfer of assets in India (Capital Gains Tax).
[36]Royalty payable to the State Government (Central Government in case of Union Territory) depends on the type of mineral. The royalty rates for many minerals are on ad valorem basis (ranges from 0.2% to 20%) whereas for some others, it is fixed on tonnage basis. Dead rents are also payable to the State Government (Central Government in case of Union Territory) and the same depends on the type of mineral and time since lease was granted for mineral extraction.



Source: Fraser institute, 2014

Figure 5.6 Fraser institute annual survey results for India.

5.7 South Africa

South Africa is a Democratic Republic where the President of South Africa, serves both as head of state and as head of government. The President is elected by the National Assembly and he must have the support of the Assembly in order to remain in office (Department of Justice and Constitutional development, Republic of South Africa, 1996).

South Africa has emerged from its long history of Apartheid to transition into a new and vibrant society and economy. After the historic democratic elections of 1994, South Africa embarked on a new direction in all aspects of governance. The South African economy is a free economy where market forces determine the prices of commodities. South Africa has the world's largest mineral reserves of gold, platinum-group metals, chrome ore and manganese ore, and the second-largest reserves of zirconium, vanadium and titanium (United Nations Industrial Development Organization, 2003).

5.7.1 **Legal framework.** South Africa has a mixture of three distinct laws, a *civil law* system from the Dutch, a *common law* system from the British and a *customary law* system from indigenous Africans. The legal system, like the political system, was completely transformed from the apartheid-based constitutional system before 1994 (Corder, 2004). In the pre-1994 South Africa, minerals were considered as property of the owner of the land. In an effort to bring about equitable reform, the *Mineral and Petroleum Resources Development Act, 28 of 2002 [MPRDA]* was promulgated in 2004. Some of the laws that govern mining operations in South Africa are; the *Mine Health and Safety Act 1996 (Act 29 of 1996)*; *Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry (The Charter)* and the *Code of Good Practice for the Mineral Industry (Mining Code)*. In 2008 *Mineral and Petroleum Resources Royalty Act, No. 28* was also enacted.

5.7.2 **Regulatory framework.** The *Mineral and Petroleum Resources Development Act (MPRDA)* which came into effect on 1 May, 2004, replaced the *Minerals Act of 1991*. The main departure of this Act from the 1991 act was that the State was declared the sole custodian of all minerals in the South Africa (Cawood, 2004). The MPRDA provides for five principal authorizations regarding minerals, a Reconnaissance Permission**,** a Prospecting Right, a Retention Permit, and a Mining Right.

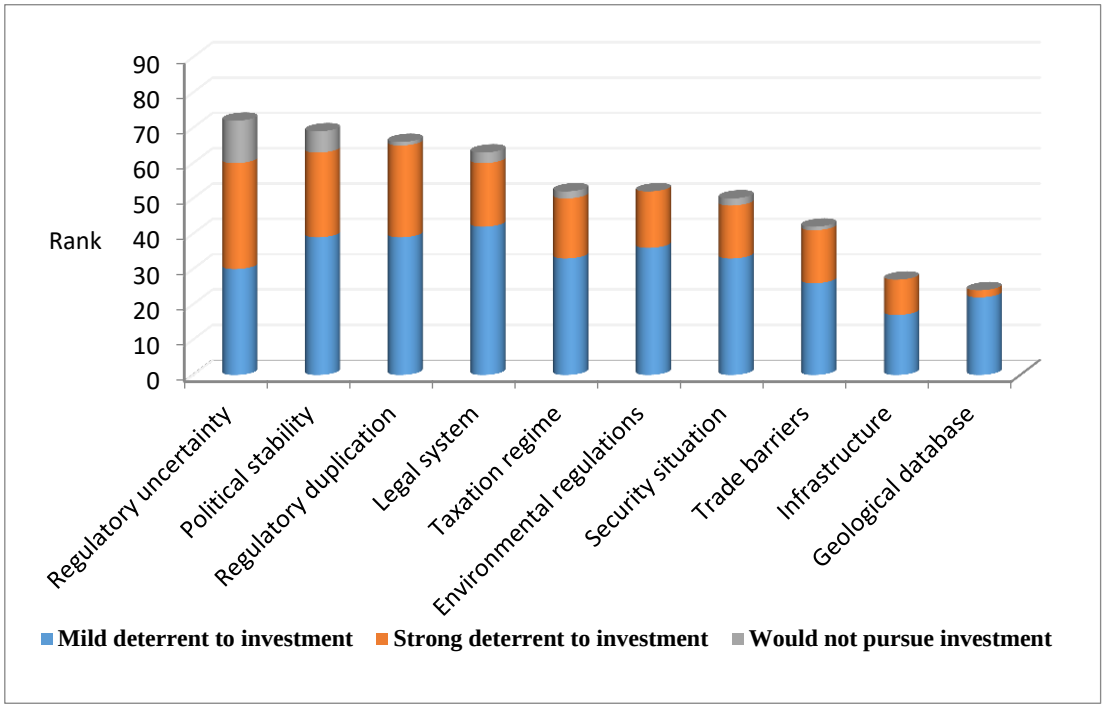
5.7.3 **Mining royalties and taxation.** Under the current mining law and tax legislation in South Africa, mining companies are subject to the following taxes (Republic of South Africa, 2008):-

- Corporate Income Tax @ 28%, which is collected by the Federal government. However, special rules apply to the gold-mining companies.[37]

[37]Prior to 1 April 2012 a standard corporate tax rate of 28% and a Secondary Tax on Companies ("STC") @ 10% is levied on mining companies. A gold mining company can elect whether or not to pay STC. Depending on its Option, there is a formula used to determine the rate at which gold mines must be taxed within or without considering the STC in it.

- Mining and Petroleum Resources Royalty (MPRD)-2008 collected centrally by the government @ 0.5 - 7% on all minerals:-[38]
- Withholding tax @ 10 % - 12.5 %[39].

5.7.4 **Fraser Institute rankings for South Africa-2014.** South Africa's Fraser Institute ratings for the 2014 are shown in Figure 5.7 (Fraser Institute, 2014). Regulatory uncertainty was ranked as the worst jurisdiction by the corporations whereas; geological database was ranked as the best by the corporations.



Source: Fraser institute, 2014

Figure 5.7 Fraser institute annual survey results for South Africa.

[38]The minimum royalty percentage in the case of refined minerals is 0.5% and the maximum royalty percentage is 5%. In the case of unrefined minerals, the minimum royalty percentage is 0.5% and the maximum royalty percentage is 7%. The rate depends on profitability and is calculated annually.
[39]A Dividends tax @ 10.0% - 12.5%.

5.8 **Kazakhstan**

Kazakhstan became an independent state in 1991 after the disintegration of the USSR. The political framework of Kazakhstan is a Presidential Republic, whereby the President of Kazakhstan is Head of the State. The President is elected by a populous vote. Executive power is exercised by the government. Legislative power is vested in both the government and the two Chambers of Parliament (Snyder, 1997).

In 2000, Kazakhstan made significant market-oriented reforms after eight years of transitional crisis from 1992 to 2000. The result was that Kazakhstan experienced an economic boom and became a major success story in Central Asia. Its growth rates reached double Figures between 2000 and 2007 (International Monetary Fund, 2015).

After the break-up from the USSR in 1991, the Kazakh mining industry was in disarray, suffering a sudden and steep decline in production (Jones, 2010). President Nursultan Nazarbayev, a miner himself, initiated structural and economic reforms in the mining sector. He privatized the State-owned industries and paid special attention to foreign direct investment (FDI). By 1998, a vast majority of the mining sector was privatized and the sector was on a growth again.

5.8.1 **Legal framework.** The Constitution of Kazakhstan was adopted on 30 August, 1995 through a referendum. The legal system of the Republic of Kazakhstan is a *Roman-German (continental) legal system* (Government of the Republic of Kazakhstan, 1995). The legal system of Kazakhstan is also influenced by the following traditions:-

- *Islamic law* (The law officially functioned until the beginning of 1920)[40];
- *Local customary law* (local traditions of the people);

[40]Islamic Law was incorporated in the customary law and norms of Sharia were followed.

- *Roman law*[41]; and
- A strict hierarchal structure of law[42].

Kazakhstan has an investment law which sets out the legal framework for investment. The *Kazakh Law on Foreign Investment (1994)* defines state guarantees regarding investor's right. It also defines dispute resolution mechanism between investor and the state and the non-discrimination between local and foreign investors (Atirbekov, 2014). Some of the guarantees provided to the investors are as follows:-

- Investor protection against adverse change in legislation by the State[43];
- Compensation for damage resulting from the promulgation of Acts;
- Free use of income from investment and the right to open foreign bank accounts[44];
- Transparency in state activities affecting investors and free access to legal information;
- Compensation for damages in case of nationalization of investment at prevailing market rates; and
- Access to international arbitrary bodies in case of dispute with the state.

5.8.2 **Regulatory framework.** Kazakhstan has world-leading reserves of chromite, zinc, copper, gold, manganese, and uranium. According to the Constitution, all minerals in Kazakhstan are the property of the State (Government of the Republic of Kazakhstan, 1995). The *Subsurface Law of 2010,* which supersede *Subsurface Use Law of 1996,* governs the subsurface exploration and mining activity in Kazakhstan.

[41]Following the theory and practice of the Soviet law and socialist principles.
[42]Constitution of the Republic of Kazakhstan at the top, constitutional norms and laws, codes and ordinary laws and other state obligations and normative decrees.
[43]This guarantee does not apply to changes in legislation that amend the procedure or conditions for importation, production or sale of excise goods, or laws dealing with defense, national security, ecological safety, health protection or ethics.
[44]Provided that all taxes and other compulsory payments have been paid.

Solid mineral contracts are administered by the Ministry of Investment and Development (MID)[45]. The MID regulates the mining activities in the country through its committee on Geology and Subsoil use. The Geology committee also has regional offices in its different territories[46]. Depending upon the sphere of activities, the mining industry is further regulated through different legislative Acts. The Ministry of Industry and New Technologies, (previously - Ministry of Energy and Mineral Resources) grants exploration and production rights. The rights are awarded for a specific time period and can also be extended before the expiration of the contract and license.

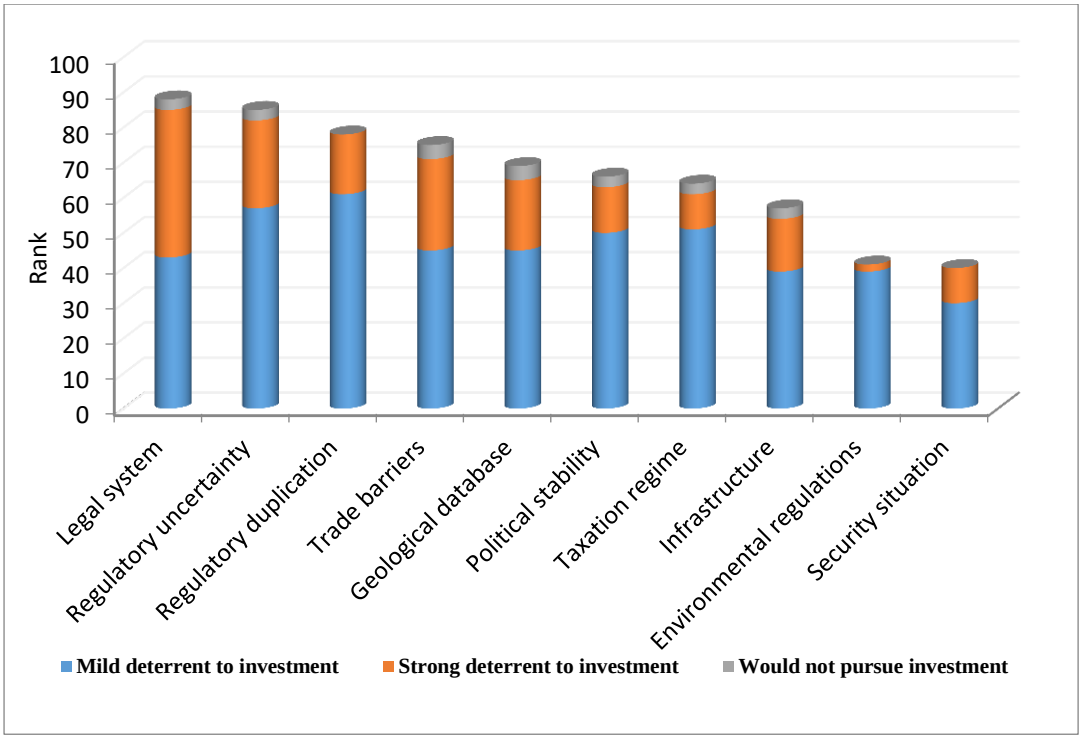
5.8.3 **Mining royalties and taxation.** After independence in 1991, the taxation and fiscal regime for mining has been developing constantly. Under the current mining law and tax legislation in Kazakhstan, companies are subject to the following tax rates (Government of the Republic of Kazakhstan, 1995):-

- Corporate Income Tax (CIT) @ 20% for both local and foreign companies. Foreign companies also pay net after tax profit @ 15% (Also known as branch profit tax[47]);
- Excess Profit Tax (EPT), paid on net income for a reporting period[48] @ 10% - 60%;
- Mineral extraction tax (MET). MET is a royalty tax collected at the federal level at the following rates:-[49]
    - Copper 5.7%
    - Gold 5%
    - Iron ore 2.8%
    - Coal 0%

[45] Before 2010 this Ministry was known as the Ministry of energy and Mineral Resources.
[46] Eastern, Western, Northern, Southern and Central territories.
[47] Reduction or elimination of this tax may be available under the appropriate tax treaty.
[48] EPT applies to a part of net income exceeding 25% of deductions. The tax rates vary from 10% to 60%, depending on the ratio of net income to deductions.
[49] MET = Annual Volume x World Market Price x Appropriate rate.

- A withholding tax at the rate of 15%; and
- Other taxes like rent tax on exports and historical cost compensation.

5.8.4 **Fraser Institute rankings for Kazakhstan – 2014.** Kazakhstan's Fraser Institute ratings for the 2014 are shown in Figure 5.8 (Fraser Institute, 2014). Legal system was ranked as the worst jurisdiction by the corporations, whereas security situation was ranked as the best jurisdiction.



Source: Fraser institute, 2014

Figure 5.8 Fraser institute annual survey results for Kazakhstan.

5.9 Turkey

Modern Turkey was founded in 1923 from the remnants of the defeated Ottoman Empire by the national hero Mustafa Kemal. Turkey is a republican parliamentary democracy where the President is the Head of the State. The President chooses his Council of Ministers including the Prime Minister who acts as the head of government (Republic of Turkey Ministry of Justice, 1982). Turkey has a free-market economy, which is driven by its industry and service

sectors. Turkey experienced a severe financial crisis in 2001, after which an aggressive privatization program was launched to recover the economy. This approach was adopted as part of fiscal reforms of an IMF program (Ulusoy, 2008).

5.9.1 **Legal framework.** Turkey has a continental European system with modifications made according to the Turkish environment. The *Turkish Civil Law System* also incorporates certain elements of the *Swiss Civil Code, the Code of Obligations* and *the German Commercial Code* (Republic of Turkey Ministry of Justice, 1982). Mining activities in Turkey are subjected to *Mining Law No 3213* enacted on 15 June 1985. This law was further amended in 2005 by *Law 5177* and 2010 by *Law 5995* (Hurley and Arı, 2011). The *Implementation Regulation on Mining Activities* dated 6 November 2010 and the *Mining Activities Permit Regulation* dated 21 June 2005 (amended from time to time) are also applicable to mining in Turkey. Once established in Turkey, Turkish and foreign companies have the same rights without any discrimination.

5.9.2 **Regulatory framework.** The Ministry of Energy and Natural Resources (MENR) is responsible for the regulation of the mining industry in Turkey (Ministry of Energy and Natural Resources, Turkey, 2008). Mining licenses are granted and regulated by the General Directorate of Mining Affairs.[50] There are three types of licences granted for prospecting and operating mines under Turkish law: an exploration licence, an operating licence, and an operating permit (enables holder to operate a mine).

5.9.3 **Mining royalties and taxation.** The Corporate Income Tax of 4% in Turkey is possibly the lowest tax rate internationally (Mahallesi, 2014). This gives Turkey an added advantage to attract foreign investment. Turkey also stands at the lower end of royalty fees

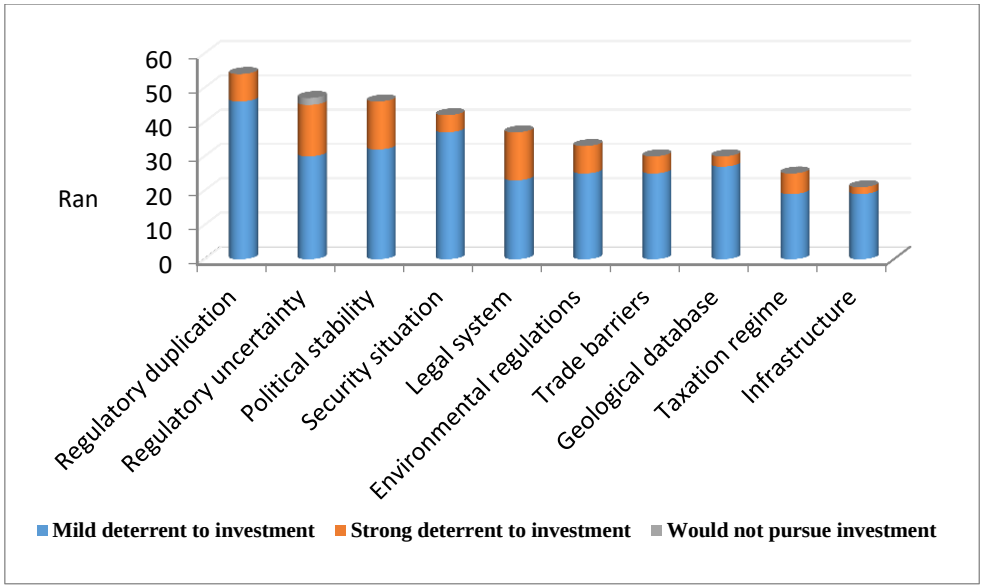
[50]A department of MENR, grants licenses and regulates mining activity.

which is further encouraging investment. The royalty is payable to the government annually as per the following rates:-[51]

- Gold, silver and platinum 4%
- Copper, lead and zinc 2%
- The amount of the royalty increases by 30 per cent for mining activities in the areas that are under the ownership of the Treasury or the State.

The basic corporate income tax rate levied on business profits is 20 per cent, while dividends are subject to 15 per cent tax. There is no restriction on repatriation of profits and no import duty for new mining and processing equipment.

5.9.4 **Fraser Institute rankings for Turkey – 2014.** Turkey's Fraser Institute ratings for the 2014 are shown in Figure 5.9 (Fraser Institute, 2014). Regulatory duplicity and regulatory uncertainty were ranked as the worst jurisdictions by the corporations, whereas infrastructure was ranked as the best jurisdiction.



Source: Fraser institute, 2014

Figure 5.9 Fraser institute annual survey results for Turkey.

[51]License holders are allowed a royalty discount of 50 per cent for certain types of mineral if the minerals are processed within Turkey.

5.10 **Comparative analysis of the selected countries**

In order to analyse the investment environment of eight selected countries, it is important to evaluate their governmental structure and the World Bank economic parameters. Table 5.1 gives a detailed account of these parameters which will subsequently help in performing the gap analysis with Pakistan's environment. A comparative analysis of legal framework and regularity framework for eight selected countries is given at Appendix A. A comparative analysis of mining royalties and taxation system of selected eight countries is given in Table 5.2, whereas for Fraser Institute ranking is given in Table 5.5. The Statistical analysis of the tax regime of eight developing countries is given in Table 5.4. Best practices of selected eight developing mineral based economies and its comparison with Pakistan is given in Table 5.3.

Table 5.1 Overview of governmental structure and economic parameters for selected developing countries.

S/ No.	Description	Remarks							
		Chile	**Mexico**	**Brazil**	**Peru**	**India**	**South Africa**	**Kazakhstan**	**Turkey**
1	Form of government	Democratic with Presidential form of government[52]	Federal republic	Democratic with Presidential form of government	Democratic with Presidential form of government	Democratic with Parliamentary form of government	Democratic with Presidential form of government	Democratic with both Presidential and Parliamentary form of government	Democratic with Presidential form of government
2	Frequency election	4 years	6 years	4 years	5 years	5 years	5 years	7 years	5 years
3	Type of economy	Market economy[53]	Market economy	Market economy	Market economy	Market economy	Market economy	Market economy	Market economy
4	Infrastructure	66.5	43.5	51.6	39.2	15.1	48.9	54.0	46.3
5	Population	17.62 million	114.97 million	199.32 million	29.54 million	1205.07 million	48.81 million	17.52 million	79.74 million
6	Estimated population growth	0.9 %	1.09%	1.1%	1.02%	1.31%	-0.41%	1.24%	1.2%
7	Surface area	756,096 km²	1,972,550 km²	8,515,767 km²	1,285,216 km²	3,287,590 km²	1,221,037 km²	2,717,300 km²	783,562 km²
8	GDP	277.2 billion US$	1.261 trillion US$	2.246 trillion US$	202.3 billion US$	1.877 trillion US$	350.6 billion US$	231.9 billion US$	822.1 billion US$
9	Annual GDP growth	4.1 %	1.1%	2.3%	5.8%	5%	1.9%	6 %	4.1%
10	GDP breakdown for different sectors	Agriculture: 3.6% Industry: 35.4% Services: 61%	Agriculture: 3.6% Industry: 36.6% Services: 59.8%	Agriculture: 5.5% Industry: 26.4% Services: 68.1%	Agriculture: 6.2%; Industry: 37.5%; Services: 56.3%	Agriculture: 3.7%, Industry: 21.5%, Services: 64.8%	Agriculture: 9%, Industry: 26%, Services: 65%	Agriculture: 5.2% Industry: 37.9% Services: 56.9%	Agriculture: 8.9% Industry: 27.3% Services: 63.8% 27
11	Tax revenue/GDP	20.8%	29.7%	34.4%	15%	10.3%	26.5%	26.23	23.2%
12	Unemployment	6.6 %	5.2%	6%	7.9%	9.8%	24.9%	5.4%	9.8%
13	Poverty[54]	15.1%	51.3 %	21.4%	31.3%	29.8%	50%	8.2%	16.9%

Sources:
The World Bank, 2014
Ministry of Law and Justice (Respective country).
Economy and growth, World development indicators, The World Bank (Respective country).
Infrastructure, World development indicators, The World Bank (Respective country).
World population data sheet, 2014 by Population Reference Bureau.
World population data sheet, 2014 by Population Reference Bureau.

[52] Different forms of governments are explained in Table 5.6.
[53] Different forms of economy are explained in Table 5.6.
[54]Population below international poverty line.

United States Geological Survey.
Economy and growth, World development indicators, The World Bank (Respective country).
Poverty, World development indicators, The World Bank (Respective country).
Poverty, World development indicators, The World Bank (Respective country).

Table 5.2 Royalty, tax regime and mining specific incentives for selected developing countries.

Country	Royalty %	Tax regime	Special incentives
Chile	Nil	• CIT @ 20%. • SMT @ 14%. • Annual tax @ 5% against operational profit.	Under DL 600[55], firms that bring capital, physical goods and other forms of investment into the country can ask to sign a foreign-investment contract with the government. The regulation includes a specific clause for the mining sector, applicable to projects worth at least US$ 50 million, which grants investors a fixed corporate income tax rate for 10 years.
Mexico	Nil	• CIT @ 28% and decreasing every year. • Flat rate business tax @ 17.5%	• International standards tax regulations and access to capital sources through lines of credit. • Efficient processing of exploration and development claims. • Elimination of sixteen percent value added tax on all stages of gold commercialization.
Brazil	0.2% - 3 %	• CIT @ 34%. • Compensation for Exploitation of Mineral Resources (CFEM) @ 1% - 2%.	• No limitation on the repatriation of capital; reinvestment of profits is considered an increase of the original capital for the purposes of the law. • Prohibitions on remittances for royalty and technical service payments between related parties were removed in the 1992 tax code. • The base tax rate on profits and royalty remittances was reduced from 25% to 15%. • In 1995, Brazil amended its constitution to eliminate the distinction between foreign and national capital.
Peru	1% - 3 %	• CIT @ 30%. • SMT @ 2-8.4%	• The Peruvian Constitution guarantees free access, possession, and disposal of foreign currency. • Investors may conclude a tax law stability agreement with Peruvian government.[56] • There is also a Special Mining Tax (SMT)[57] which is mining specific tax levied by the central government.

[55] Decree Law (DL) 600 is a mechanism for the entry of capital into Chile. Under this regime, whose use is optional, foreign investors bringing capital, physical goods or other forms of investment into Chile may ask to sign a foreign investment contract with the State of Chile.
[56]Tax stability would include taxes known as “impuestos” for a period of ten to fifteen years. No taxes created subsequently to the date of execution of the stability agreement shall be applicable.
[57]Tax applied as a marginal rate, from 2 percent to 8.4 percent, on operational profit.

India	0.2%- 20%	• CIT @ 33.22% for Indian companies &42.23% for foreign companies. • Remittance tax @ 21.115% on royalty and 42.23% on other income • SMT[58] @ from 0.2% to 20%.	• Mining carried out in Special Economic Zone (SEZ) is eligible for tax holiday. • Import customs duty rate of 5% against the normal rate of 12.5% for coal mining projects. • No enhancing of royalty on mineral more than once during any period of three years.
South Africa	0.5% - 7%[59]	• CIT @ 28%.	A tax holiday scheme for any newly formed company commencing new manufacturing activities that qualify under the law.
Kazakhstan	1% - 5.7%	• CIT[60] @ 20 % • EPT[61] @ 10-60% • Withholding tax (SMT) @ 15%.	• Guarantees of the legal protection of investor's' activities on the territory of the Republic of Kazakhstan • Investors shall have the discretion to use income, generated from their activities, after paying the taxes and other compulsory payments towards budget. • Guarantees for the protection of the investor's' rights during nationalization and requisition
Turkey	4%	• CIT @ 4%[62] • Dividends @ 15%	• 50% less royalty by creating additional added-value by processing minerals in the country. • If the production takes place underground, the mining company pays 50% less royalty. • The Value Added Tax (VAT) is collected on all minerals except gold, silver, and platinum exploration expenditures.

Sources: Updated
Foreign Investment Committee Republic of Chile
Metals Economics Group
Fraser Institute, Economic freedom of the world
Ministry of Mines and Energy, Brazil
World Development Indicators, the World bank
Ministry of Mines, Government of India
United Nations Industrial Development Organization
Department of Minerals and Energy, South Africa
Ministry of Energy and Natural Resources, Turkey

[58]Special mining tax.
[59]The Mineral and Petroleum Resources Royalty Act applies variable royalty percentage rates based on whether the mineral is refined or unrefined. The minimum royalty percentage in the case of refined minerals is 0.5% and the maximum royalty percentage is 5%. And, in the case of unrefined minerals, the minimum royalty percentage is 0.5% and the maximum royalty percentage is 7%.
[60]Corporate income tax.
[61]Excess Profit Tax.
[62]Actual corporate tax for mining is 20% but it reduces to 4% for mining companies due to tax incentive.

Table 5.3 Best practices of selected eight developing mineral based economies and its comparison with Pakistan.

S/No	Description	Range	Average	Standard deviation	Pakistan
1	Democracy	-	-	-	Democratic with Parliamentary form of government
2	Frequency election	4 - 7 years	5.125 years	0.927 years	5 years
3	Type of economy	-	-	-	Free market economy with a blend of Islamic laws
4	Infrastructure ranking	15.1 – 66.5	45.638	13.831	
5	Population	17.5 million – 1205.1 million	214.074 Million	378.938 Million	183 Million
6	Estimated population growth	-0.4 - 1.3 %	0.931 %	0.521 %	1.7 %
7	GDP	202.3 billion US$-2246 billion US$	908.513 billion US$	752.074 billion US$	245 US$ billion
8	Annual GDP growth	1.1 - 6 %	3.788 %	1.717 %	3.59%
9	GDP breakdown for different sectors	-	-	-	-
10	Tax revenue/GDP	10.3 – 34.4 %	23.266 %	7.307 %	11.9%
11	Unemployment	5.2 – 24.9 %	9.45 %	6.081 %	6.2%
12	Poverty	8.2 – 51.3 %	28 %	14.859 %	22.3%

Table 5.4: Statistical analysis of the tax regime of eight developing countries.

Description	Range[63]	Average[64]		Standard deviation	
Royalty	0 – 20 %	Minimum limit	Maximum limit	Minimum limit	Maximum limit
		0.9 %	5.3%	1.3	6.4
Corporate Income Tax	4 – 42.33[65] %	25.8 %		11.4	
Specific Mining Tax[66]	0.2 – 20 %	Minimum limit	Maximum limit	Minimum limit	Maximum limit
		9.1 %	15.6 %	9.5	5.6

[63] Range is calculated between the minimum and maximum limit of the royalties for eight countries.
[64] Average is calculated separately for both minimum and maximum values of royalties.
[65] 42.33 % is the CIT for foreign companies in India.
[66] SMT is calculated from values of three countries, i.e. Chile, Mexico and India. Values are calculated separately for both minimum and maximum limits.

Table 5.5 A comparative analysis of Fraser Institute ranking for eight selected countries.

S/No	Country	Fraser Institute Survey Ranking 2013[67]									Average	Rank
		Political stability	Security situation	Legal system	Regulatory uncertainty	Trade barriers	Environmental regulations	Taxation regime	Infrastructure	Geological database		
1	Chile	17	11	22	14	19	37	20	37	15	21.3	8
2	Mexico	45	65	55	41	36	28	54	31	24	42.1	6
3	Brazil	40	54	70	53	55	50	50	63	50	53.9	3
4	Peru	50	64	53	37	35	45	39	66	34	47.0	5
5	India	34	64	67	77	55	55	58	60	54	58.2	2
6	South Africa	69	50	63	72	42	52	52	27	24	50.1	4
7	Kazakhstan	66	40	88	85	75	41	64	57	69	65.0	1
8	Turkey	46	42	37	47	30	33	25	21	30	34.6	7

Source: Fraser Institute Mining Survey 2013, viewed 29 November 2016, https://www.fraserinstitute.org/studies/annual-survey-mining-companies-2013.

Table 5.6 Definitions of types of democracy and types of economy.

S/No		Types	Definition	Example
1	Economy	Traditional economy	Custom and tradition dictate what to produce, how to produce it, and for whom. Hunting, fishing and farming are the main economic activities in such an economy.	Rare in the 21st century, some still exist (e.g., in Papua New Guinea).
		Command/ Planned economy	In this type of economic system, the government owns all means of production. Rulers and centralized governments impose their economic choices on society in the form of production.	Cuba, China, former Soviet Union
		Market economy	Market economies are based on consumers and their buying decisions. Market trends and product popularity generate what businesses produce. The producers choose how to make products based on the most economically sound decision.	USA, Japan
		Mixed economy	Both the government and individuals play important roles in deciding how much to produce and	Canada, Sweden, UK

[67] The ranking is based on the total score of "mild deterrence to investments", "strong deterrence to investment" and "would not peruse investment".

<table>
<tr><td></td><td></td><td></td><td colspan="2">what to buy. Typically involves aspects of a market economy (competition) and government involvement (such as environmental regulations and the social safety net).</td><td></td></tr>
<tr><td></td><td rowspan="3">Economic system</td><td>Capitalism</td><td colspan="2">Individuals and corporations are free to invest in and own all aspects of a business. People own their own companies and can manage them to earn a profit</td><td>USA, Australia, UK, etc.</td></tr>
<tr><td>Socialism</td><td colspan="2">Political and Economic System in which businesses are controlled by the government rather than individuals. People have equal rights to various benefits (health care, education, etc.), and there is an effort to limit the inequalities of wealth and power. Taxes are often high to provide these benefits and people can hold private property</td><td>Sweden, Denmark, etc.</td></tr>
<tr><td>Communism</td><td colspan="2">Government controls all business and individuals cannot own property or industries. All communists are socialists, but not all socialists are communists.</td><td>Cuba, China, former Soviet Union</td></tr>
<tr><td>2</td><td>Governance models</td><td>Democracy</td><td colspan="2">Democracy is a political system whereby a freely elected government represents (for a set term) the majority of citizens. There are usually many parties with a variety of political views. Democratic governments can be of two types:-
Parliamentary: A System of government where the legislature (congress) has the real executive power, it has a Prime Minister elected by the legislature.
Presidential: A system of government in which the president is constitutionally separate of the legislature and he is the head of the State and government.</td><td>Parliamentary – India, Israel
Presidential - USA</td></tr>
<tr><td></td><td>Federal Republic</td><td colspan="2">A federal republic is a type of government made up of smaller areas such as states or provinces where the central government cedes certain powers to the individual areas for self-government purposes. The citizens of the federal republic elect their own representatives to lead them.</td><td>USA, Mexico, Germany, etc.</td></tr>
<tr><td></td><td>Dictatorship</td><td colspan="2">A dictatorship is a political system whereby a single person or party has absolute control over an entire nation (usually via the military). There are no free elections allowed.</td><td>North Korea and Sudan</td></tr>
<tr><td></td><td>Communism</td><td colspan="2">A political model based on the theories of Karl Marx, Friedrich Engels, and Vladimir Lenin (Soviet Union). The government owns all means of production and wealth and there is no private property or free enterprise.</td><td>China, Cuba, North Korea, Vietnam</td></tr>
<tr><td></td><td>Theocracy</td><td colspan="2">Government leaders are members of the clergy (church officials), and the legal system is based on religious law.</td><td>The Vatican (Pope) and Iran</td></tr>
<tr><td></td><td>Monarchy</td><td colspan="2">A monarchy has a king, queen, emperor or empress. The ruling position can be passed on to the ruler’s heirs. In some traditional monarchies, the monarch has absolute power. But a constitutional monarchy, like the UK, also has a democratic government that limits the monarch's control.</td><td>Jordan, Saudi Arabia, Japan, United Kingdom</td></tr>
</table>

5.11 **Lessons for Pakistan**

It is clear from the analysis of these eight developing countries that they all had improved political stability and some continuity in their policy framework. The continuity is important because investors like the policy to continue unchanged due to the specific nature of the mining operation. All these countries subsequently came to one point and that was free open-market economy. They all declared promotion of investment in the mining sector as national interest and top priority. The fundamental elements of their success which are lessons for Pakistan are summarized below.

Parliamentary democratic form of system is the most commonly adopted system in these eight countries with a five years average as the frequency of elections. All these eight countries have a free market economy. The range for the World infrastructure ranking is 15.1 – 66.5 with an average of 45.638. The range for the annual population growth for these countries is -0.4 - 1.3 %, whereas the average is 0.931 %. The range for the annual GDP growth for these countries is 1.1 - 6 %, whereas the average is 3.788 %. The range for the tax revenue/GDP for these countries is 10.3 – 34.4 %, whereas the average is 23.266 %. The range for the unemployment for these countries is 5.2 – 24.9 %, whereas the average is 9.45 %. The range for the population below international poverty line for these countries is 8.2 – 51.3 %, whereas the average is 28 %.

These countries initiated the following positive steps to progress their economies:-

- Continuity in the political system of the country, which ensured the continuity in royalty and taxation system to gain confidence of the investors;
- The governments (especially the Latin American States) turned into an investment promoter and regulator rather than being an active partner;

- Specific mining laws geared towards attracting mineral investment were introduced, which guarantee foreign direct investment in mining sector;
- A user-friendly regulatory body for mining operations was introduced to open their mining sectors to foreign investments;
- Repatriation of profits and capital, tax stability and non-discrimination against foreign investors;
- A policy of minimal-discriminatory fiscal system among local and foreign companies. For example, the Investors were allowed to conclude a tax law stability agreement with Peruvian government which gave them additional confidence in investment. In the case of Kazakhstan, all the mining specific-royalties and taxes were revoked in 1990s to attract international investment in the mining industry; and
- All these countries had a central control of all minerals (State property until it is mined).

The following lessens are concluded to be considered for Pakistan:-

- Continuity in the political system that will ensure the continuity in mineral sector policy to gain confidence of the investors;
- A strong regulatory regime in line with the leading practices of the mining world;
- A policy of the government turning into an investment promoter and regulator as against being an active partner;
- Specific mining laws should be introduced for attracting mineral investment, which should guarantee foreign direct investment in mining sector;
- A minimal-discriminatory fiscal policy among local and foreign companies to gain their confidence and attract foreign investment in mining sector; and

- A progressive policy which should adapt to changing environment. A specialized study group should be formulated to revisit mineral policy every four to five years.

5.12 **Conclusion**

Chapter five has examined the policies of eight selected developing countries. This examination was done keeping in view five key policy elements that are critical for any country to develop its investment-friendly mineral policy. The five key policy elements are: political stability; economic situation and reforms; legal framework of the country; regulatory framework for mining operations; taxation system. These five elements will be used in chapter seven as a basis for comparison and gap analysis of Pakistan against the eight selected countries.

Chapter six will focus on the role of stakeholders in the policy development process. It will also examine the role, relevance and expectations of stakeholders and communities in mineral development. It will identify the major stakeholders in Pakistan. Most of the mineral resources of Pakistan are located in the remote areas, so it is important to have an in-depth study of these communities and the criterion for indigenous people to participate in the development of the sector.

CHAPTER SIX

ROLE OF STAKEHOLDERS IN THE POLICY DEVELOPMENT PROCESS

6.1 Introduction

Policy development is a fundamental function of any government. The decision process by which individuals, groups or institutions establish policies pertaining to plans, programs or procedures is called policy development. It is a process by which government translates its political vision into programmes and actions for its economic and social sector. The traditional policy-making process was to develop a policy and then let the public servants implement it. However, this approach fails to recognise the many challenging factors which shape the way policy is formulated, implemented and evaluated. The stakeholders bear the impact of policy and improvement in their lives determines the success or failure of a particular policy.

Policy is a declaration that defines the intention of a government's goals and priorities. It creates a framework within which the administration and staff can perform their assigned duties (Dukeshire and Thurlow, 2002). In the 1990s, many developing countries in Latin America, Asia, and Africa adopted new fiscal-policy and legal frameworks for mining. The purpose was to remove government barriers in the minerals sector and to mobilize private investment. There is a temptation for countries to copy policy solution from other countries. However, this can lead to the implementation of ill-adapted and often inappropriate mining programmes. Therefore, Pakistan should not copy and transfer perceived efficient processes that work for a given country, but rather adopt a policy development process involving the key policy development designs, building on domestic issues.

A mineral policy with the aim of achieving real, measurable and long-term development goals should be formulated on the basis of prevailing circumstances in the particular context and time (Radetzki, 1980). A successful mineral policy requires the identification of the interested parties (IPs), their interests as well as the government's 'commitment' and 'effectiveness' to achieve the policy goals (Rogers et al, 2002).

States have certain goals and objectives and they achieve these by implementing a home-grown policy. The involvement of stakeholders positively affects the policy formulation, adjustment, development and increase the likelihood of successful implementation (Schalk, 2011). By interacting with stakeholders during the policy formulation process, the impact and results can be managed and adjusted to meet the national objectives. Another advantage of involving stakeholders during the policy formulation process is that there is collective ownership of both success and failure. In case of failure, there will not be a sole proprietor for the failure and the reasons of failure can be identified and corrected. Local government players increasingly involve themselves in interactive policy making to enable the non-government actors in decision making (Denters, 2003). In the absence of local government, it would be extremely difficult for all stakeholders to play their part effectively in policy formulation. Stakeholder's involvement is also referred to as collaborative governance. The goal of stakeholder involvement is to maximize the performance of policies and give future direction for legislation.

Without the involvement of stakeholders, it would be impossible to arrive at an enforceable and workable policy document. Pakistan is bestowed with considerable geological potential, but to date, the share of the mineral industry remains less than 1% of GDP (Ministry of Petroleum & Natural resources, Government of Pakistan, 2013). With appropriate mineral policy, the mineral sector has the potential to contribute 1.5-2.0 billion US$, resulting in 2-3

% increases in GDP, with inter-linkages and development of other tertiary sectors as well (World Bank, 2003).

6.2 Stakeholder Definition

A formal definition of a mining industry stakeholder from a policy maker perspective is, *"A stakeholder is someone who will gain or lose through the outcome of a mineral policy. A stakeholder can be a person, group of people or organisation that must be taken into account when making a mineral policy*[68]*"* (International Institute for Environment and Development, 2005).

A stakeholder is someone who affects and gets affected by a process or an action. There is no generic list of stakeholders for all processes, as their role and identification are dependent on the type of process they are involved (Kusek and Rist, 2004). The mining industry is peculiar to its own environment which incorporates diverse stakeholders from the mining industry to the local community. The policy-maker has to consider a number of different dimensions when identifying stakeholders. These dimensions are summarised in Table 6.1.

Table 6.1 Dimensions for inclusion in the stakeholder identification process.

S/No	Dimension	Explanation	Example from mining industry (Pakistan)
1	Responsibility	People and organisations that have legal, financial and operational responsibilities assigned to them in the policy.	• Ministry of Petroleum and Natural Resources. • Ministry of Law. • Ministry of Finance.
2	Influence	A stakeholder who can influence the ability of an organisation to meet its goals by actions those are likely to drive or impede performance.	• The Provincial Ministries of Minerals and Natural Resources. • Mining industry. • Ministry of Law.

[68] The definition has been derived from the following three sources:-

- The Stakeholder engagement manual by the United Nation Environment Programme, 2005;
- Studies in Mining Policy, the Fraser Institute, 2013; and
- Responsible Business Initiative, the Asia-Pacific CSR Centre Group and the South Asia Alliance for Responsible Business, 2014.

3	Proximity	The stakeholders who have the most interactions with policy-makers and the mining industry, including internal and external stakeholders.	• The Provincial Ministries of Minerals and Natural Resources. • Mining industry. • Local community.
4	Dependency	The people who are most dependent on policy and an organisation.	• Mining industry. • Local community. • Vendors. • Foreign investors. • Suppliers.
5	Representation	The people who are entrusted to represent other individuals based on the regulatory structure.	• The Minsters of respective ministries. • The heads of the local community (The local government representatives). • The CEO's of the mining corporations. • Trade-union representatives.

Source: Developed from
1. The Stakeholder engagement manual by the United Nation Environment Programme, 2005.
2. Ministry of Petroleum and Natural resources, Pakistan, 2014.

6.3 Types of Stakeholders

Stakeholders may be directly or indirectly affected by the successes or failures of a mineral policy. There are two types of stakeholders; internal stakeholders and external stakeholders, which are explained below.

6.3.1 **Internal stakeholders.** Internal stakeholders are those who are directly involved in the implementation and operation of a mineral policy. Some stakeholders also have the influence to make important policy and implementation decisions. Internal stakeholders are those that are directly affected by the policy, such as government institutions, mining industry and foreign investors. Many people or groups are directly affected by the mineral policy, such as those who own the land or have legal or customary rights to use it. These groups are the local communities and are included in the internal stakeholders.

6.3.2 **External stakeholders.** External stakeholders are those who are not directly affected by the change in mineral policy. These parties are not directly involved in decision-making

and policy implementation. External stakeholders include nongovernmental organisations, vendor companies which depend upon mineral production and international economic bodies[69].

6.4 Role of Stakeholders in Policy Development Process

Stakeholder involvement in policy development has been advocated by many researchers and a participatory process is advocated worldwide (Community Toolbox, 2014). Policy making should involve as many people and organizations as possible who are influenced by the policy. Involvement of all the stakeholders during the process of policy development will lead to better and workable outcomes. As a result, a supportive environment of the community will pave the way for effective implementation (Community Toolbox, 2014). For a better participatory process for policy making, we first need to identify the stakeholders and their roles. It is important to note that all stakeholders are not required at all levels of policy development process. Stakeholders play an important role in the policy making process. They provide ideas and define the stakes involved through interactive dialogue.

The mineral law and policy framework for a country is: the combination of laws and regulations that influence mineral development; policy elements influencing permits, taxations and funds; and more importantly the social development of the local community (Canada, 1974). For example, in the 1990's the global exploration expenditure attracted by the Canadian mining sector was half of what it was in the 1980's (Bond, 2000). The two reasons highlighted in the Kwagga Report (2001) were: the environmental body's strong watch led to withdrawal of large land for conservations and parks; and the uncertainty around the aboriginal claims and the concerns of the local communities which led to loss of

[69] For example, the World Bank, IMF and Asian Development Bank.

confidence by the investor. Both these issues had its implications on the uncertainty of land tenures.

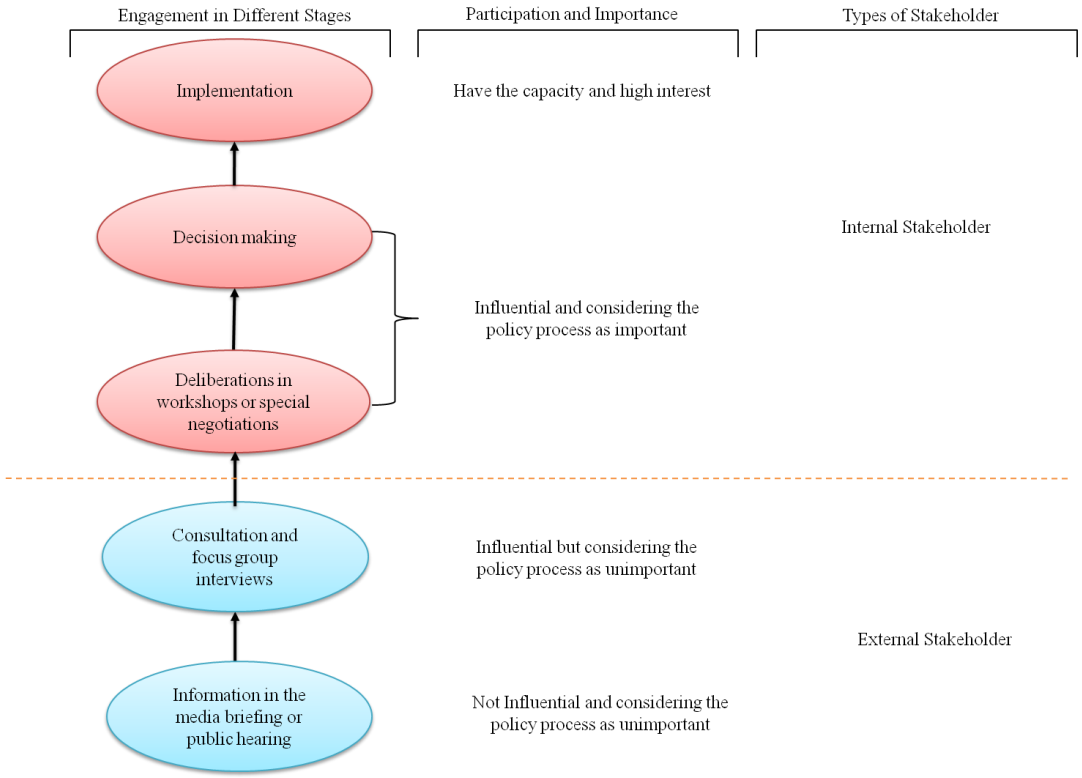
As a result of the above, the mining association of Canada brought various stakeholders together to create a mineral policy that would address the concerns of all the stakeholders. This idea was agreed upon by all and the initiative was named Whitehorse Mining Initiative (Natural Resources Canada, 1999). The Whitehorse Mining Initiative involved representatives from industry, government, labour unions, local community, and the environmental protection bodies. The process started in February 1993 and ended in September 1994, and the recommendations of the process formed the basis of the 1996 Minerals and Metals Policy of the Government of Canada. The initiative saw the Canadian mining industry contribute positively towards national GDP growth and beneficiation of minerals in the last decade.

6.5 **Stakeholder Engagement Process**

A range of stakeholders needs to engage in the process for a number of reasons, at various times and at different levels. The depth of their involvement can range from simply receiving information to fully participating in decision-making and implementation (Figure 6.1). Meaningful stakeholder consultation is essential if the policy is to have the support it needs to be implemented. The engagement process works effectively when responsible authorities offer options for discussion and listen to feedback from stakeholders, including recommendations.

The level of participation as a stakeholder depends on the degree to which that particular stakeholder is affected by the policy or can influence its development and implementation. Figure 6.1 offers suggestions, but ultimately, the policymaker must decide the nature and

form of engagement. This will create an environment of trust and will help streamlining the process.



Source: Updated
Studies in Mining Policy, the Fraser Institute, 2013.
Responsible Business Initiative, the Asia-Pacific CSR Centre Group.
The South Asia Alliance for Responsible Business, 2014.

Figure 6.1 Levels of stakeholder participation vis-à-vis type of stakeholders.

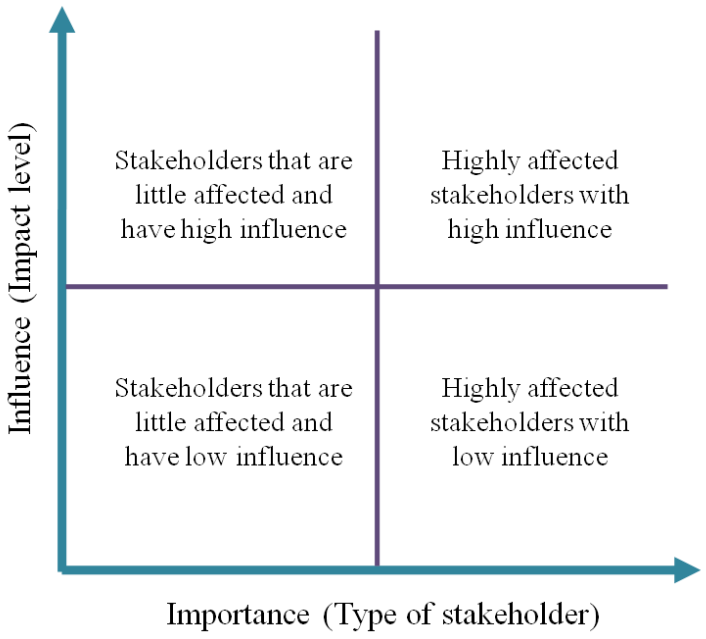
Given the sensitivity of the political environment in Pakistan, the selection of policy-making participants should also be done in consultation with critical stakeholders. In doing so, it ensures that they have a say in the process from the beginning. It also enhances the understanding of who the stakeholders are, of their opinions and of relations among them.

6.6 **Stakeholders Identification for Pakistan's Mineral Sector**

Stakeholder analysis is an important part of developing a stakeholder engagement plan, but before making a plan, identification of stakeholders is pivotal. It helps to pave a way

to engage all the parties who are involved in the research and development of the policy. By identifying the stakeholders, the aim is to engage them in the early stages so that implementation is collectively guaranteed (ODI, 2014).

One way of identifying key stakeholders is to classify the different groups along a two-dimensional matrix (Figure 6.2). For instance, mining-dependent poor people in rural areas are important stakeholders as they are highly affected but often have little influence. The Ministry of Petroleum and Natural Resources is also a major player because of the influence it wields. Similarly, a mining industry that expands its businesses by mining cannot be ignored. While there will be different views on who should participate, serious effort must be made to involve those who are most affected, particularly marginalized groups living in remote areas, which are often poor and lack capacity to effectively participate in the policy-making process.



Source: Developed from:
1. Improving Framework Conditions for Extracting Minerals for the EU, Enterprise and Industry Directorate
2. General, the European Commission, 2010.
3. The Stakeholder engagement manual by the United Nation Environment Programme, 2005.
4. Studies in Mining Policy, the Fraser Institute, 2013.
5. Responsible Business Initiative, the Asia-Pacific CSR Centre Group and the South Asia Alliance for Responsible Business, 2014.

Figure 6.2 Stakeholders analysis matrix: who should be involved?

For identification of stakeholders, an impact analysis table is drawn (Table 6.2). In the impact analysis, all potential stakeholders are listed with their impact on different spheres. For example, the local community, which is an internal stakeholder having high influence on the policy making process, is highly important for consultation as it has economic, social, environmental and law-and-order implications on the area. Therefore, local community is a critical stakeholder in the policy formulation process and must be engaged as early as possible to give credibility to the process. Similarly, those stakeholders who have high influence on the policy-making process and are also highly important for consultation due to their economic, social, environmental and law and order impacts on the area, are considered to be critical stakeholders. It is important to note here that this stakeholder-identification is done specifically for Pakistan whilst taking into consideration the country's current economic, social and security environment.

Table 6.2 Stakeholder impact analysis in Pakistan's mining industry.

Impact area \ Stakeholder		Government	Mining industry	Local community	Local representatives	Law enforcing agencies	Religious parties	Financial institutions	Media	Judiciary	Academia	Trade Unions	International bodies	NGO's
		Internal	Internal	Internal	Internal	External	External	External	External	External	External	External	External	External
		High influence on the policy							Low influence on the policy					
Economic	Highly important	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Social		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environmental		✓	✓	✓	✓				✓		✓		✓	✓
Law &Order		✓		✓	✓	✓	✓	✓						
Legislation	Low	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓
Business	Low	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓
Academia	Low	✓	✓		✓			✓			✓	✓	✓	✓
Confidence building	Low	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓

Source:

Natural Resources Wing, Ministry of Petroleum & Natural Resources, Government of Pakistan, 2013.

Ministry of Defence, Government of Pakistan, 2015.

Prime Minister's Secretariat, Government of Pakistan, 2015.

Ministry of Interior, Government of Pakistan, 2014.

Ministry of Religious Affairs and Inter Faith Harmony, Government of Pakistan, 2015.

Ministry of Finance, Government of Pakistan, 2014.

Ministry of Law, Justice and Human rights, Government of Pakistan, 2014.

The various critical stakeholders identified in Table 6.2 are:-

6.6.1 **Government, its affiliated organs, and implementation bodies.** The Government of Pakistan is an internal and critical stakeholder as it is affected economically if the policy is not producing economic and social uplift. The government in Pakistan operates through its subsidiary ministries. The important ministries that should play their role in mineral-policy formulation are Ministry of Petroleum and Natural Resources, Ministry of Finance, Ministry of Environment, Ministry of Water and Power, Ministry of Defence, Ministry of Transportation, Ministry of Law, Ministry of Education, Ministry of Religious Affairs and Inter-Faith Harmony and Ministry of Manpower and Welfare.

The latest mineral policy of 2012, namely the NMP-2, was formulated without the consultation of these Ministries, which resulted in the exclusion of a meaningful input from these intergovernmental Ministries. A very important aspect to note in this mineral policy paradigm is that the resources are the property of the provinces, but the policy for their utilization and beneficiation is formulated at the federal level. This means that the provincial governments must formulate their own policies within the overall boundaries of the national mineral policy (Sohail, 2013). This arrangement of policy formulation makes inter-provincial and federal coordination a very important aspect which was completely ignored in the formulation process of NMP-2. Inter-linkages between Ministry of Water and Power, Ministry of Finance and Ministry of Law are pivotal for smooth functioning of the mineral sector.

6.6.2 **Mining industry.** The mining industry is a very important stakeholder for any mineral-related policy and implementation process. Mineral extraction and beneficiation have adverse effects on biodiversity and the environment. The literature provides ample evidence on how a mining corporation should act to do no harm to the environment, people, and social

values. Companies normally tend to get more and quick profit with mining, thereby neglecting responsible mining practices. Such neglect can ignite conflicts with surrounding communities and have severe environmental impacts. A corporation's role as a key stakeholder in the policy formulation will address their genuine concerns and also ensure that responsible mining practices are followed.

Extraction of mineral resources has both positive and negative impacts for local residents, governments, and our environment[70]. Because minerals are public assets, decisions about their extraction and exploitation must take place in a transparent and participatory approach. The government should make the discussion public so that it is subject to scrutiny by civil society. Problems will arise with an imbalance of power between resourceful and knowledgeable mining companies and unprotected communities. A responsible mineral-development structure can redress this imbalance and will allow following the best course-of-action which addresses the concerns of all stakeholders.

6.6.3 **Local communities and their representatives.** According to the census held in 2011, Pakistan's total population is 183 million (Brinkhoff, 2012) with a total land area of *803,940* Km². Pakistan's mineral-rich areas are in the province of Baluchistan, Sind and Khyber Pakhtunkhwa (KPK). Seventy per cent of the population live in rural and remote areas (Afzal, 2009). Reko Dik, Thar Coal and gemstones are in extreme remote areas (Sohail et al., 2013), where security has remained the main concern over last decade.

Table 6.3 shows the mineral-wealth distribution of Pakistan in its provinces. It is evident that approximately 98 % of the total mineral-wealth of Pakistan is in the provinces of Baluchistan, Sindh, and KPK. However, poverty, unemployment, health and education indicators are the

[70] Local employment opportunities, economic boost, and governmental revenues are some of the positive impacts of mining, whereas environmental degradation and social unrest due to conflict with the mining corporation are some of the negative impacts of mining.

worst when compared to the wealthiest province of Punjab. Unfortunately, during the past 68 years, Baluchistan and KPK had not been developed due to political inability and a lack of coordinated effort. Sui in Baluchistan produces 84% of the Pakistan's natural gas production;[71] but, until now, Sui town is without any supply of natural gas (Index Mundi, 2013).

The population density of Baluchistan is only 18.9 persons per Km^2 (Table 6.3). Due to the discriminatory approach towards development of smaller provinces, the local population of Baluchistan is being exploited by those who are against Pakistan and its development (internal as well as external). This has resulted in an insurgency in Baluchistan, and organizations like Baluchistan Liberation Army (BLA) and Baluchistan Liberation Front (BLF) have taken up arms against the State. The situation gets worse when local-community objects to foreign companies working in their territories. As there is no local community involvement in the policy formulation process, they disrupt the production and further exploration in the area.

For a successful mining operation in mineral-rich areas, it is imperative to include the indigenous people[72] in policy making. The policy should address the basic needs and development of these people to refrain them from armed conflict.

[71] Pakistan natural gas production was 1462.9 Billion cubic feet in 2012.

[72] Indigenous people of Baluchistan and KPK Province should be included in the process of consultation. This can be done by including their local representatives (local Councilors and Nazim of the area), and not the Sardars and Maliks who only represent a family and has little or in some cases no contact with the local population.

Table 6.3 Provincial distribution of mineral wealth and corresponding poverty-reduction indicators- Pakistan.

S/No	Province	Area Km²	Population %[73]	Density Population / km²	Mineral reserves (% of total)						Unemployment %	Literacy rate (%)	Health[74]
					Copper	Gold	Silver	Iron	Coal	Natural gas			
1	Punjab	205345	55.63	358.3	-	-	-	53	0.13	9.56	19.10	28.4	10.8
2	Sindh	140914	23.00	216.0	-	-	-	-	99.7	4.58	14.43	28.4	10.8
3	KPK	74521	13.41	238.1	2	-	-	24	0.05	1.86	26.83	34.0	15.5
4	Baluchistan	347190	4.96	18.9	98[75]	100[76]	100[77]	23	0.12	84	33.48	21.1	7.5

Sources:

Pakistan bureau of statistics, 2014.

The World Bank, 2014.

Natural Resources Wing, Ministry of Petroleum & Natural Resources, Government of Pakistan, 2013.

Ministry of Health and Population, Government of Pakistan, 2015.

Ministry of Federal Education and Professional Training, Government of Pakistan, 2014.

Ministry of Interior, Government of Pakistan, 2014.

[73] Data does not include Federally Administered Tribal Area (FATA) and Islamabad Capital Territory (ICT).

[74] Expenditure in % of total budget spending.

[75] Out of total Copper reserves, 84% at Reko Diq, 7% at Saindak and 9% in different locations of Baluchistan.

[76] Complete reserves at Reko Diq and Saindak, Baluchistan.

[77] Complete reserves at Saindak, Baluchistan.

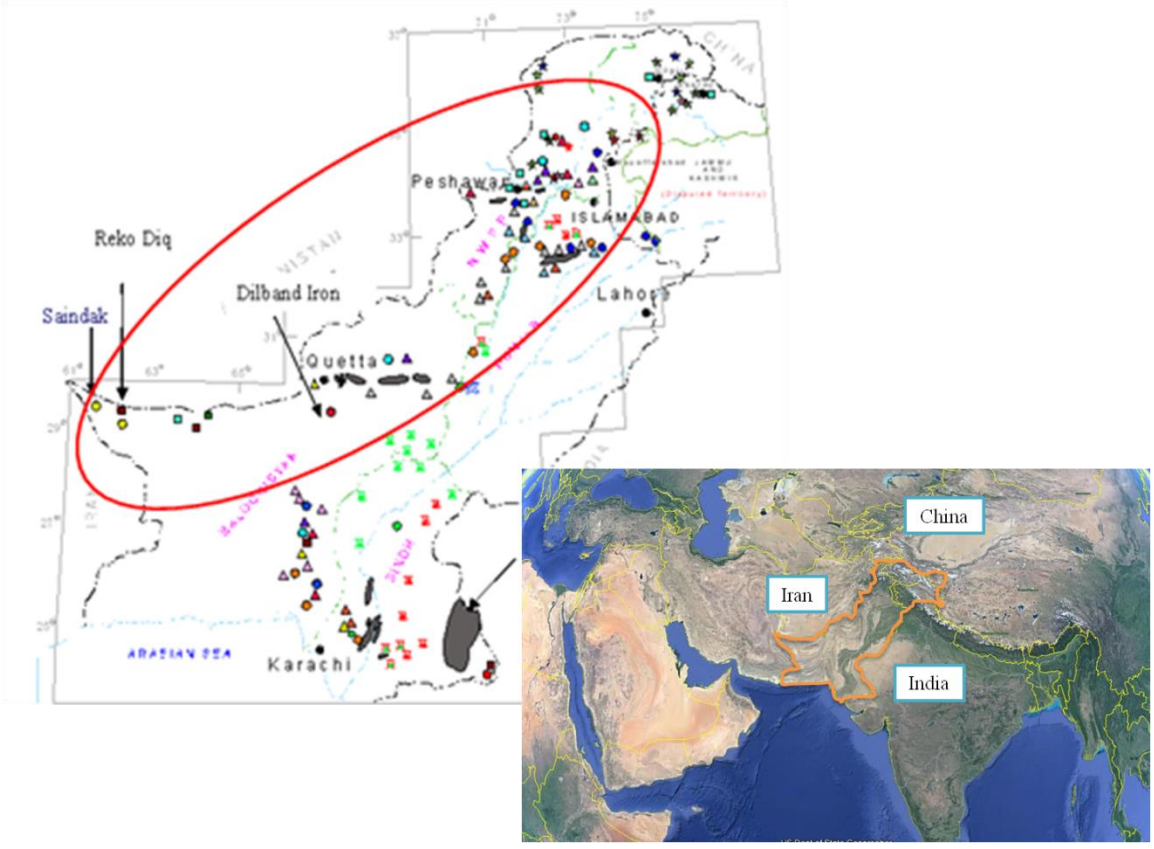
6.6.4 **Law-enforcing agencies (LEA's).** Security is an issue in Pakistan, especially when companies are foreign. The main security issues are originating from terrorism among other challenges e.g. kidnapping, ransom and target killing. Pakistan has remained a target of fierce terrorism ever since its alliance with the international war on terror after 2001, and the country is currently ranked second after Somalia in terrorism (Tribune, 2014). Foreign-persons kidnapping is another issue in which Pakistan is ranked fifth globally (Red, 2012). During the period from 2001 to 2014, Pakistan has lost 43,000 lives and 85 billion US$ due to terrorism and its precarious security situation (Strachan, 2012). This loss does not include the opportunities coming from FDI, which could have been invested if the situation was peaceful.

Foreign investors are reluctant to invest in Pakistan due to the precarious security situation and the fact that 90% of the minerals are present in areas where the security situation is the worst (Figure 6.3). Over the years, the role of LEA's has become vital for ensuring the security in the western parts of the country. Although, the military is the third line of defence after the police and civil armed forces, due to the extreme situation of terrorism and insurgency in Pakistan, the Army is given the responsibility to combat internal security threats. Figure 6.4 shows the areas of active operations under Pakistan Army due to armed conflict. The consultation of the army as a stakeholder is therefore important due to its prolonged presence in the mineral-rich areas of Baluchistan, KPK and Federally Administered Tribal Area (FATA). Their involvement in the policy formulation process is vital for three reasons:-

- The military has the intelligence and understanding of the activist and terrorist groups operating in that particular area.

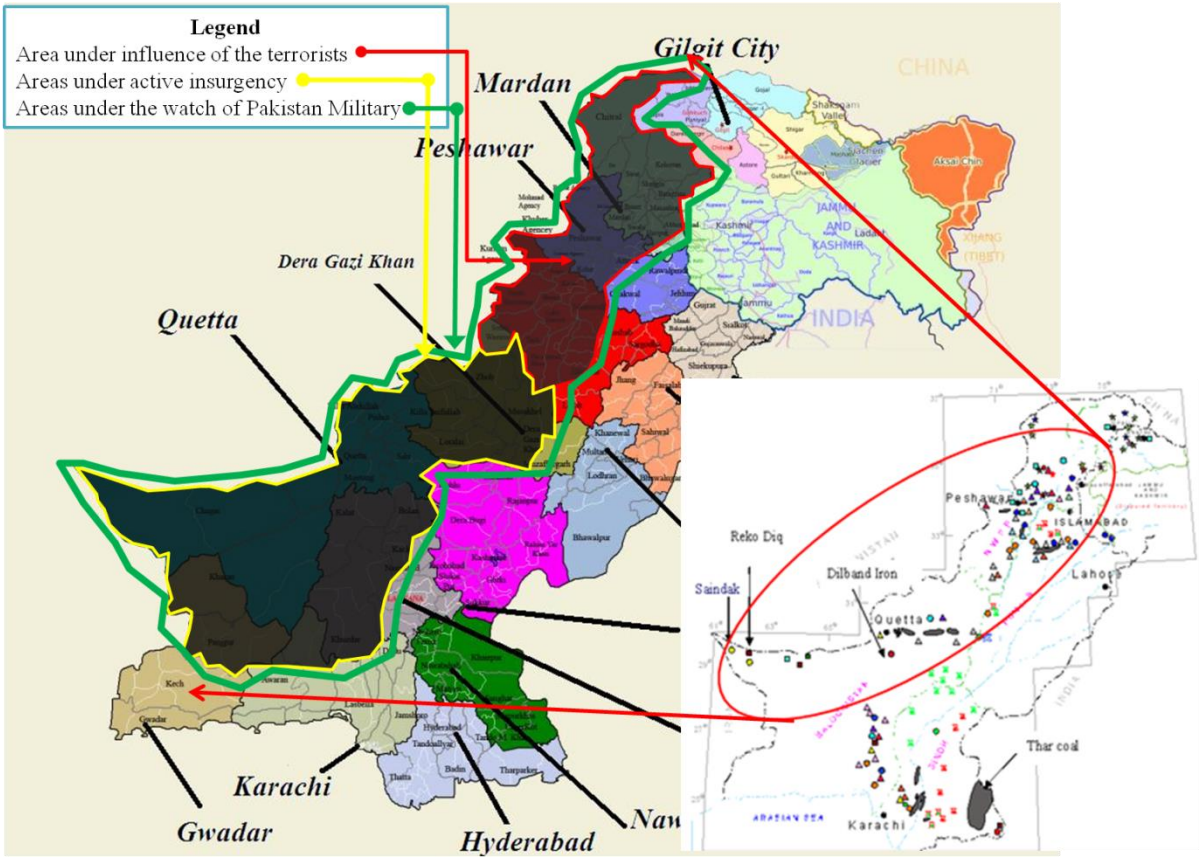
- Without the consultation of the military, the intensity of the threat is difficult to measure, which will result in critical gaps in the policy regarding the security situation.
- A detailed input from the military is necessary for the implementation plan of the policy in the mineral-rich areas.

The current situations in Baluchistan, KPK and FATA merit consulting all the LEA's as a stakeholder to undertake any mining venture. In Figure 6.4, areas are shown where banned terrorist organizations and Baluch insurgents have influence and are provoking local communities against the state.



Source: Updated
Geological Survey of Pakistan, Ministry of Petroleum & Natural Resources, Government of Pakistan, 2013

Figure 6.3 Geological locations of mineral resources of Pakistan.



Source: Updated
The Kansas free press, 2014.
http://www.kansasfreepress.com/2009/12/final-report-from-the-nation-cruise-terrorism-justice-and-politics.html
Ministry of Interior Affairs, Government of Pakistan, 2014.
Ministry of Defence, Government of Pakistan, 2014.

Figure 6.4 Areas of Pakistan under terrorist and insurgent influence.

6.6.5 **Religious Monarchs.** Pakistan was created on the ideology of Islam in 1947. Muhammad Ali Jinnah, the father of the nation, defined Pakistan as a progressive and enlightened Islamic State. Due to this, the religious parties have never been able to obtain majority-participation in the national assembly. However, these religious monarchs and their supporting parties have street-power to gather people due to an environment of fear and forced manipulation (International Crises Group, 2011). Pakistan has a predominant Sunni population of about 85%, whereas 10-12% population belongs to Shia sect. The Sunni sect has further four follower sects which are inter maligned in the society. Due to this complex

division of main sect into the splinter factions, inter-sect violence[78],[79] and conflicts are inbuilt in routine functions (International Crisis Group, 2015). Since 2007, there has been a sharp resurgence of sectarian violence in Pakistan. According to the South Asia Terrorism Portal, an online database, there were 631 sectarian incidents in Pakistan between 2007 and 2011 that led to the deaths of over 1,649 people. In 2010, 509 people were killed and 1,170 injured in 57 incidents of sectarian violence (Tankel, 2014). In 2011 the incidence of sectarian violence decreased (203 killed and 297 injured in 30 incidents), only to soar in the first five months of 2012: between January and May, 177 people were killed in 51 incidents (Kfir, 2014).

Another problem in Pakistan is the presence of a large number of religious schools (Madrassas) in the rural areas. People in rural areas cannot afford to send their children to expensive schools where there is better education. They find it easier to send their children to the free Madrassas established by religious monarchs across the country. This has resulted in a parallel and diverse education system, which is the main cause of extremist thoughts and ideology in the young generation.

Pakistan's cultural diversity and religious structure have formed a complicated framework which has an impact on legislation. A foreign investor sees and perceives Pakistan as a society with strict Islamic laws, where investment-guarantees are non-existent. The situation is totally different if we follow the true spirit of Islamic laws. For this very reason, it is

[78] Sectarian violence is the violence between members of the two main sects of Islam, Sunnis and Shias. It is also between the Barelvi and Deobandi sub-sects of Sunni Islam. Approximately 50% of Pakistanis identify as Barelvis, but Deobandis – who account for approximately 20% of the population, follow a more orthodox version of Islam and consider certain Barelvi practices un-Islamic – exert a significant influence over Pakistan's security situation. This is because most extremist militant organisations in Pakistan are Deobandi and more than 65% of all Madrassas (Islamic schools) are run by Deobandis. Sectarian violence in Pakistan manifests variously as: 'tit-for-tat' targeted killings of members of rival sects; suicide bombings or gun attacks against another sect's mosques, funerals or religious processions; and attacks against sectarian targets using explosives. Pakistan has the second-largest Shia community in the world after Iran, widespread sectarian violence threatens to destabilise the country and the region. Moreover, the growing power, networks and resources of sectarian organisations will lead to an overall deterioration of Pakistan's already-fragile security situation.

[79] GlobalSecurity.org, "Barelvi Islam", n.d., accessed June 19th 2015, http://www.globalsecurity.org/military/intro/islam-barelvi.htm.

necessary to include true religious scholars in the policy formulation paradigm. They are very important stakeholders as they control almost 70% of the country's population living in the rural areas.

6.6.6 **Financial institutions.** Pakistan has a stable and growing banking sector with 9 independent development finance banks (State Bank of Pakistan, 2015). Although the State Bank of Pakistan is an autonomous body, in practice it operates under the Ministry of Finance. In 2013, expansion of debt-liabilities increased 7.2% due to poor governance, terrorism and government expenditures on non-developmental projects (State Bank of Pakistan, 2014). There is a need to consult and involve financial institutions in policy-making, including the executive financial departments of government and the Ministry of Finance.

6.7 Stakeholder's Involvement in Pakistan's Mineral Policies

The aim of a good mineral policy is to attract foreign direct investment (FDI) through competitiveness, and by ensuring a stable and secure environment. This stable and enabling environment requires political and social stability which are the foundation-stones in the investment cycle. With limited capital, there is competition in today's mining world to secure capital. Mining companies are scaling back their operations due to margin squeeze and the mining investment (exploration and mining) is mainly confining to the countries such as Australia, Chile, Canada and many African countries. However, the geostrategic location of Pakistan and its proximity to China (one of the BRIC countries), provides Pakistan opportunity to attract foreign mining corporations for investments (Figure 6.4). By keeping strong trade relations with China, India, and Russia, Pakistan can benefit its local mineral industry, as these BRIC countries are close neighbours to Pakistan.

Pakistan's economy depends upon foreign aid and international loans. The World Bank has ranked it as a lower middle-income country. Pakistan has a debt-payable-to-GDP ratio of 184.7 (World Bank, 2014). Pakistan is facing acute security and governance challenges, which are impeding the country's economic growth. It is important to include security and governance issues in the proposed mineral-policy development framework.

Given the complex nature of its conflicting stakeholders, the last policy failed to achieve its objectives. It was made in isolation without incorporating the stakeholders and without analysing the impact of stakeholder-consultation process. Mineral development and the mining industry have an impact on the economy, social development and other industries, directly or indirectly (Leuw, 2013). There is a need to incorporate all the stakeholders in the mineral-policy development process so that directions are set for international investors. This will facilitate addressing issues such as: confidence-building for international companies; addressing unstable and volatile political and civil atmospheres; developing measurable atmosphere with defined deliverables for a mineral policy; formulating the guidelines for interaction between provincial and federal governments for implementation of mineral policy. The following are the most important stakeholders for developing and implementing a mineral policy in Pakistan:-

- First, the federal Government, because all the resources should belong to the State and the State can then extract benefits for mining;
- Second, the Pakistan military, because security and a safe-environment are of utmost importance for foreign-investment. For progress to take place, the military has to play its role in normalising the law and order situation;
- Third, the local communities and their representatives. It is important to take the latter on board before policy formulation and implementation;

- Last but not least, the mining industry itself.

6.8 **Conclusion**

Chapter six discussed the role, relevance and expectations of stakeholders and communities in mineral development. It also identified the major stakeholders in Pakistan. Most of the mineral resources of Pakistan are located in remote areas. These poor provinces were compared against the wealthiest province of Punjab. In addition, chapter six identified specific areas which need to be addressed before formulating a responsible and sustainable mineral policy.

Chapter seven will attempt to develop a strategic-fit for mineral policy framework for Pakistan, a framework which best-suits her environment. Chapter seven will also analyse the gaps between Pakistan's current mineral policy and leading developing-country policies.

CHAPTER SEVEN

POLICY CONSIDERATIONS FOR THE MINERAL SECTOR OF PAKISTAN: A GAP ANALYSIS

7.1 Introduction

Pakistan is gifted with significant mineral resources and is emerging as a promising mineral-development destination. Provided that proper direction is set, the sector has the potential to fulfil Pakistan's national goals and ambitions. Despite Pakistan formulating two mineral policies in the past, the sector's contribution to national GDP remains small (less than one percent). This GDP contribution is out of sync, given the presence of significantly-large concentrations of mineral deposits and industrial minerals.

Mineral policy formulation is a multifaceted and dynamic process, which requires flexible and transparent decision-making that embraces a diversity of knowledge and values. Policy is the vision and objective that is needed for a nation to move forward. Mineral-policy defines the direction that a nation follows in order to extract maximum benefits from its mineral resources. Despite its two successive mineral policies of 1995 and 2012, Pakistan has been unable to obtain required economic growth comparable to other developing mineral-based economies of the world. This situation calls for a concerted effort to identify the shortcomings in Pakistan's mineral policy as compared to developing countries analysed in chapter five.

7.2 Gap analysis – Definition

"Gap analysis is a way to compare the current conditions and practices in order to identify the gaps with regards to compliance to the relevant standards"[80]. It can also be defined as,

[80] Derived from the World Bank publication on "Public Sector Accounting and Auditing in South Asia; A Comparison to International Standards", 2010.

"*The determination of the difference between current knowledge/practices and current evidence-based practices"*[81]. Gaps can occur in knowledge, skills or practice.

Chapter four highlighted five key policy elements that are critical for any country to develop its mineral policy. These are: political stability; economic situation and reforms; legal framework of the country; the regulatory framework for mining operations; taxation system. The eight countries which were analysed in chapter five are Chile, Peru, Brazil, Mexico, India, South Africa, Kazakhstan, and Turkey.

7.3 Gap Analysis for the Mineral Sector of Pakistan

Pakistan has a large endowment of mineral deposits, including precious metals, dimension stones, industrial mineral, rock salt and coal (Ministry of Petroleum & Natural Resources, Government of Pakistan, 2013). These mineral resources have the potential to contribute to the economic growth of Pakistan; however, there is very limited investment and exploration in this sector, which indicates a lack of a coordinated and well-conceived mineral policy. The steps to performing a gap analysis are given below and explained in Figure 7.1.

- Find out the current practices and the current situation;
- Determine what the leading practices are;
- Establish the gap;
- Develop an option to plug gaps; and
- Develop an implementation-plan to arrive at the objectives which are based on the leading practices.

[81] Derived from the European Commission publication on "Gap Analysis of the Water Scarcity and Droughts Policy in the EU", 2012

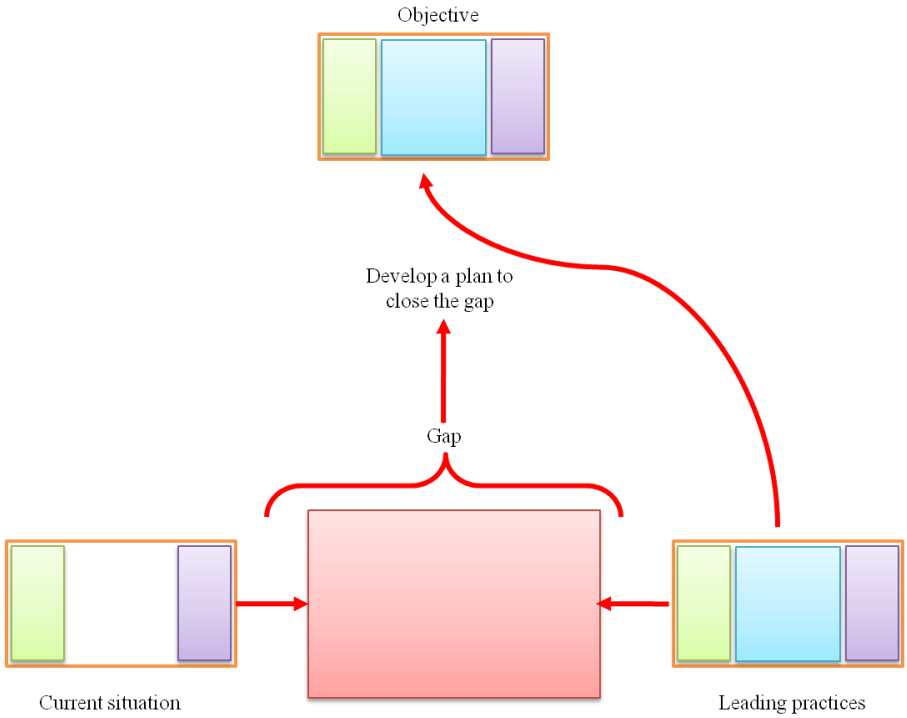


Figure 7.1 Steps to performing a gap analysis.

7.4 History and Current Practices

7.4.1 **Political and economic paradigm of Pakistan.** Pakistan is a Federal Republic, with a parliamentary form of government, governing a population of over 183 million (the world's 6th-largest). The Prime Minister is the Head of the Cabinet and the government (Ministry of Law and Justice, Pakistan, 2014). During the past 68 years, Pakistan's experiences with democracy have been transitory, as brief democratic rules were followed by prolonged military regimes (Khan, 2011). Since independence in 1947, Pakistan has had three constitutions. The latest and the current, was promulgated in 1973. However, in the 68 years following independence, the country has seen three occasions where its constitution was broken/held-in-abeyance by a military coup (Table 7.1).

Political stability is important for the economic growth and confidence-building of foreign investors, as it ensures the continuity of policies. It is also believed that the continuation of the political system is essential for economic growth. Yet there seems to be a contradiction in this conventional wisdom in the case of Pakistan (Husain, 2009). An interesting fact is that

whenever Pakistan had military governments, GDP grew positively as compared to when Pakistan had democratic governments (Table 7.1 and Figure 7.2). The possible reason for this is that prolonged military rule provided policy-continuation-guarantees to investors.

Table 7.1 Form of governance in Pakistan since 1947 and its effects on GDP growth rate.

	Period	Years	Form of government	Power structure		Average % GDP growth/ contribution by manufacturing[82] sector
				Head of State	Head of government	
1	1947-1949	2	Colonial system of governance under a Governor General[83]	Governor General	Governor General	3.11 % (10.22 in 1955[84])/ 8.85 %[85]
2	1949-1958	9	Democratic with Parliamentary form of government (Working under British Indian Constitution[86])	Prime Minister	Prime Minister	
3	1958-1969	11	Martial law[87]	COAS[88]		5.5 % / 8.6 %
4	1969-1973	4	Martial law under a civilian dictator	COAS and Civilian martial law administrator (1971-1973)		5 %[89] / 7 %
5	1973-1977	4	Democratic with Parliamentary form of government[90]	Prime Minister		6 % / 2.5 %
6	1977-1985	8	Martial law	COAS		12 % / 9.5 %
7	1985-1988	3	Democratic with Presidential form of government[91]	President (COAS)	Prime Minister	7 % / 8.4 %
8	1988-1999	11	Democratic with Parliamentary form of government	President	Prime Minister	4.7 % / 4.2 %
9	1999-2003	4	Martial law	Chief Executive (COAS)		3.29 % / 5.6 %

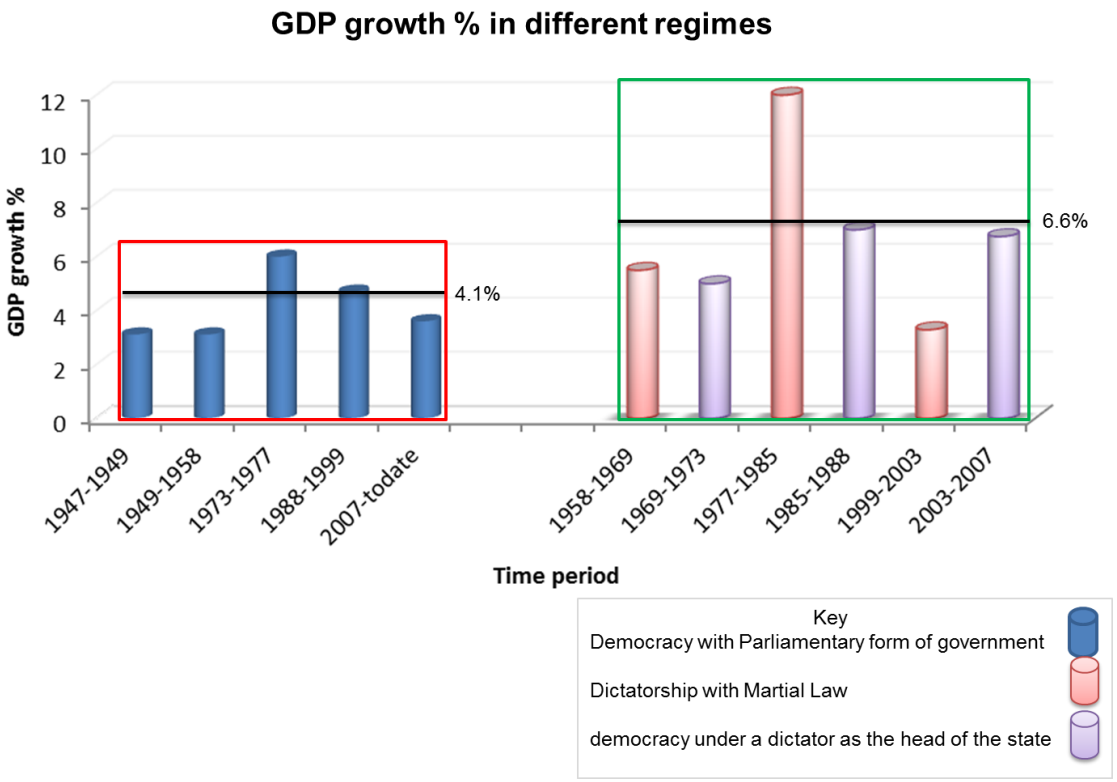
[82] Mining sector is part of production sector which comes under manufacturing sector.
[83] Muhammad Ali Jinnah, the founding father of the nation was the first Governor General.
[84] Major General Iskander Ali Mirza was the Governor General having a strict control over the politicians.
[85] Data source is Federal Bureau of Statistics, Pakistan.
[86] The first constitution was approved in 1956, before which the government affairs were mainly run through British Indian Constitution of 1935.
[87] A law under which emergency is enforced and civil laws are repealed.
[88] Chief of the Army Staff: He is the commander of the Armed forces of Pakistan.
[89] The average growth rate was at 8.14 % in 1970-1971, when military was in direct control of the country and General Yahya was the President.
[90] Parliamentary democracy was first introduced to the country through the Constitution of 1973.
[91] A parliamentary form of government when people elected their representatives on non-party-basis but General Zia-Ul-Haq was the President with powers to overthrow the government (he exercised these powers in 1988 to overthrow the elected government of Muhammad Khan Junejo).

10	2003-2007	4	Democratic with Presidential form of government[92]	President (COAS)	Prime Minister	6.75 % / 7.5 %	
11	2007-today	8	Democratic with Parliamentary form of government	Prime Minister		3.6 % / 5 %	
12	Total years after independence					68	
13	Total years in Parliamentary form of government					23	33.8%
14	Total years under the Martial law with the military leadership heading the state					34	50%
15	Total years under the partition veterans with no constitution of its own					11	16.2%

Source: Updated
Democracy in Pakistan, Hasan Askari Rizvi

[92] A parliamentary form of government when people elected their representatives on party-basis but General Pervaiz Musharaf was the President with powers to over throw the government.

Table 7.1 and Figure 7.2 explain the difference in economic growth between Pakistan's democratically-elected governments and military governments. The best era for Pakistan's economy was 1977-85, when General Zia Ul Haq ruled the country through a martial law (Table 7.1). The share of the manufacturing sector, of which mining is a part, also saw progress under the military governments. The economic growth averaged 6.6 % under the military regimes as compared to an average of 4.1 % under the democratic regimes.



Source: The World Bank, 2015.

Figure 7.2 Comparison for annual GDP growth rate between democratic and military governments.

The general economic paradigm of Pakistan was positive under the military regimes, with almost all economic variables showing significant growth. Based on the statistical evidence of economic parameters for the last sixty eight years, it is appealing to make a correlation between economic growth and dictatorial regimes (Khan, 2012). Does it mean that a military regime is a *strategic-fit* form of government for Pakistan? The statistical answer is yes.

However, critical analysis of the post-budgetary reviews and economic surveys[93] revealed that these economic benefits did not reach the masses (Cheema, 2004). The common-man did not get any benefit from these growing economies; therefore poverty and unemployment regularly increased.

The reality is that the regime changes—military or civilian—did not make any substantive difference to the economic paradigm of the country. However, it is evident that the military governments performed much better than its political counterparts, which is a clear indication that continuity of policies and unity of command has a direct effect on macro-economic growth (Table 7.1 and Figure 7.2). So it's not the form of government that is effecting the economic growth. Instead, the continuity of policies, security of investment and economic guarantees attracts foreign investments, which, in turn, leads to subsequent economic growth.

7.4.2 **Legal framework.** Pakistan's legal system is based upon the legal system of British India, thus ultimately on the common law of England, and influenced by Islamic Sharia law (GOP Constitution, 1973). The current legal framework of the mining sector in Pakistan is covered under article 141 & 142 of the Constitution of Islamic republic of Pakistan, 1973. It consists of three different documents: - The 1948 Act for the minerals and oil-gas sectors, National Minerals Policy-1995, and National Minerals Policy-2012. After the 18th Amendment to the Constitution in 2008, all provinces now have their own separate mineral policies.

7.4.3 **Regulatory framework.** The Ministry of Petroleum and Natural Resources of government of Pakistan is entrusted with: responsibility for policy formulation; provision of policy-guidelines to the provinces; coordination of Pakistan's mineral-sector development in order to attract and sustain private-sector investment (Ministry of Petroleum and Natural

[93] Economic survey of Pakistan by Ministry of Finance, Government of Pakistan, 1980-2014

Resources, 2004). Minerals, petroleum and gas in Pakistan are the responsibility of the Ministry of Petroleum and Natural Resources. Under The Constitution of Pakistan, the responsibility of nuclear minerals and those found in the territory lies with the control of the central government, i.e. with the federal government. In 2008, under the 18th Amendment to the Constitution, all other mineral resources were declared under the direct control of provincial governments (Government of Pakistan, 2013).

7.4.4 **Mining royalties and taxation.** Under the legal framework, the royalty is collected by the provisional governments as follows (Ministry of Petroleum and Natural Resources, 2013):-

- Precious stones 10%
- Precious metals 3%
- Base metals 2%
- Others 1%

The following rates of royalty on coal are being charged by the provinces (these rates exclude the 15% sales tax) (Ministry of Petroleum and Natural Resources, 2014):-

- Government of Pakistan 0. 2 US$/- per tonne
- Government of Punjab 0.35 US$/- per tonne
- Government of Sindh 0.6 US$/- per tonne
- Government of Khyber Pakhtunkhwa 0. 25 US$/- per tonne

Royalties on coal and for construction and industrial materials are charged according to mass and not as percentage of sales. For all other minerals, a standard policy is applicable according to which royalty is charged on the gross value of sale determined on a third-party (arms-length) basis. The rates vary, with 10% charged on precious stones, 3% on precious

metals and semi-precious stones, 2% on base metals, and 1% on other minerals (Ministry of Petroleum and Natural Resources, 2013).

7.5 International Leading Practices

The last two decades have seen a significant shift in the investment practices of mining companies across the world. The investment has largely shifted from the global-north to more dispersed, developing countries in the South. This shift in mining capital into the developing world is due to specific mining laws geared towards attracting mineral investment (Dougherty, 2011). The analysis in chapter five helped standardize a best-practice for the development of such countries, based on their mineral potential. Table 7.2 highlights the best practices of the eight selected developing mineral-based economies.

Table 7.2 Leading practices of selected eight developing mineral-based economies and its comparison with Pakistan.

S/No	Category	Description	Range	Average	Standard deviation	Pakistan	Remarks
1	Politics and democracy	Democracy	Parliamentary democratic system			Parliamentary system[94]	All the four Latin American[95] countries and Turkey have Parliamentary democratic systems, whereas South Africa and India have parliamentary form of governance. Kazakhstan has a hybrid system[96].
2		Frequency election	4 - 7 years	5.1 years	0.9 years	5 years	Pakistan: Within the range of standard deviation.
3	Economic situation	Type of economy	Free market economy			Free market economy with a blend of Islamic laws	All selected developing countries have free market economy.
4		GDP	202.3 billion US$-2246 billion US$	908.5 billion US$	752.074 billion US$	245 billion US$	Pakistan's GDP is below the average but it's within the allowable standard deviation for the selected countries.
5		Annual GDP growth	1.1 - 6 %	3.8 %	1.7 %	3.6%	Pakistan's GDP growth rate is in line with selected developing countries; however, there is still room for improvement and it should ideally be in the range of 5-6 % annually.
6		Tax revenue/GDP	10.3 – 34.4 %	23.3 %	7.3 %	11.9%	Pakistan's tax-revenue/GDP is below the allowable standard deviation.
7		Unemployment	5.2 – 24.9 %	9.5 %	6.1 %	6.2%	Pakistan's unemployment is below the average It is one of the areas where Pakistan has performed well.
8		Poverty[97]	8.2 – 51.3 %	28 %	14.9 %	22.3%	Pakistan's poverty is below the average but it's within the allowable standard deviation for the selected countries.
9	Others	Infrastructure ranking	15.1 – 66.5	45.6	13.8	118	Infrastructure rating[98] for Pakistan is below average and it is also below the

[94] A constitutional democracy, operating in a parliamentary system.
[95] Developing Latin American countries selected in chapter 4, which are Chile, Brazil, Peru and Mexico.
[96] Both parliamentary and presidential system.
[97] Population below international poverty line.
[98] Infrastructure ratings are the average ratings of transport, electricity & telephony, information, communication and technology, education, health, security, and public institutions.

							standard deviation for the selected countries. Infrastructure plays a pivotal role in attracting foreign investment.
11		Population	17.5 million – 1205.1 million	214.1 million	378.9 million	183 million	Pakistan's population is below the average and is within the allowable standard deviation for the selected countries.
12		Estimated population growth	-0.4 - 1.3 %	0.9 %	0.5 %	1.7 %	Pakistan's population growth rate is very high and is above the standard deviation limit of the selected countries. The growth rate is exponential and needs to be considered in national planning.
13		Surface area	756,096 km² - 3,287,590 km²	2,567,389.75 km²	2,403,061.835 km²	803,940 km²	Pakistan's: Significant.

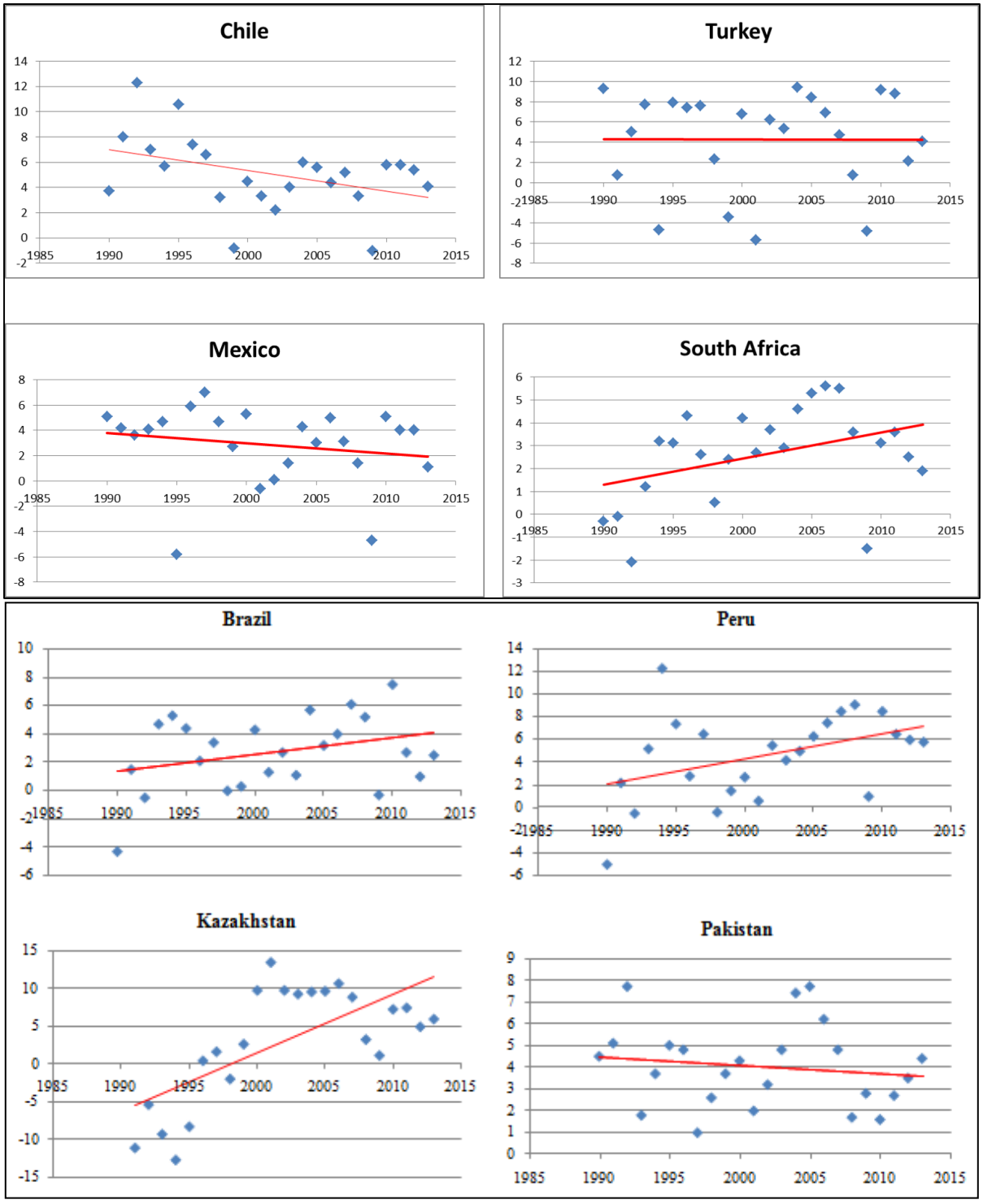
Source: Updated (Derived and extracted from Table 5.1 in chapter 5)

World developing Indicators by the World Bank
Ministry of Law and Justice (Respective country)
Economy and growth, World development indicators, The World Bank (Respective country)
Infrastructure, World development indicators, The World Bank (Respective country)
World population data sheet, 2014 by Population Reference Bureau
World population data sheet, 2014 by Population Reference Bureau
United States Geological Survey
Economy and growth, World development indicators, The World Bank (Respective country)
Poverty, World development indicators, The World Bank (Respective country)
Poverty, World development indicators, The World Bank (Respective country)

7.6 Gap Analysis

A Democratic with Presidential-form of government is the most commonly implemented form of governance in the selected countries (Table 7.2). Chile, Brazil, Peru, South Africa, Kazakhstan, and Turkey have Democratic with Presidential form of government, which makes it the most popular form of government in the selected developing mineral-based economies. All selected developing countries have free-market economies.

7.6.1 **Political stability versus economic growth.** The global economic growth has seen above-average growth during the past five decades. Many developing countries sustained rapid growth for extended periods. The greater part of this growth resulted from policy reforms that provided macroeconomic stability, encouraged markets and embraced greater openness to trade and investment. Examples of high growth for over a quarter of a century by Japan (1951–88), China (1979–03) and Korea (1954–98), are clear-indication of their sustained economic policy and political stability. On the other hand, Pakistan's GDP grew at an average annual rate of about 4.9 percent from 1950-1999. Pakistan's growth was volatile and showed a declining trend (Figure 7.3). In contrast, other developing, mineral-based economies showed less volatility (particularly in recent years). More importantly, the trend in growth rate in these countries increased over time (Figure 7.3).



Source: Updated
World Development Indicators
Citigroup Global Markets, February 2011

Figure 7.3 Economic (GDP %) growth of selected developing mineral base economies 1990-2013.

Figure 7.4 illustrates that all the three developing countries (Brazil, Peru and Kazakhstan) had an increasing trend in economic growth as compared to Pakistan which had volatile growth

with no clear trend over a last 25 years. Brazil launched a comprehensive macroeconomic policy reform in 1990. These reforms subsequently transformed Brazil into one of the world's most successful market economies. Figure 7.3 illustrates that Brazil had steady economic growth. Peru's economy is one of the best-performing economies in Latin America. The country's increasing economic growth trend between 1995 and 2015 is due to favourable macroeconomic policies (The World Bank, 2015). In 1990, Peru initiated a series of structural reforms with a fundamental principle to open the country's economic sector to foreign investment. Mining was part and parcel of this shift, mainly through privatization of State-owned mining enterprises (Perales, 1994).

Kazakhstan is included in the comparison because of two reasons; first, it is a developing country with Islamic background and culture, second there has been a complete turnaround in its economy in the first decade of the twenty-first century. In 2000, Kazakhstan made significant market-oriented reforms that resulted in an economic boom, causing it to become a major success story in Central Asia. Its growth rates reached double Figures between 2000 and 2007 (International Monetary Fund, 2015).

7.6.2 **Islamic economic system and its effects on the economy of Pakistan.** Pakistan had to face many economic challenges since its creation, and with frequent changes in ruling civilian parties and military governments, economic policies had been changed many times. Although Pakistan's economic system had never been at any extreme-end of either planned economy[99] or market economy[100], at some points in Pakistan's history, the one or the other system influenced the country more (Ibrar, 2015). Theoretically Pakistan's economy had four

[99] A planned economy is called a command economy. The most important aspect of this type of economy is that all major decisions related to the production, distribution, commodity and service prices, are all made by the government. The planned economy is government directed, and market forces have very little say in such an economy. A planned economy may consist of state-owned enterprises, private enterprises directed by the state, or a combination of both.

[100] In a market economy, national and state governments play a minor role. Instead, consumers and their buying decisions drive the economy. In this type of economic system, the assumptions of the market play a major role in deciding the right path for a country's economic development.

different stages since its inception. First, when Pakistan was created, its economy was based on agriculture. In that system, people were free to make decisions regarding their wealth but government interference was heavy. This system remained in place until the end of 1960s. Second, under the Zulfiqar Ali Bhutto's leadership, the economic system drastically changed towards a more command-based economic system. He used nationalization as a policy for this. Within 13 days of his taking the president's office, he nationalized 31 banks and large-scale enterprises[101]. Third, in the 1990s, Pakistan chose a mixed economic system, with government controlling almost all of the banks and fields like railways, power-and-energy-sector, and communication (Amjad and Javed, 2015). Fourth, after 1999, the military government under Pervaiz Musharaf instituted privatization policies. He sold all-but-one of the commercial banks owned by the government. This era of the economy led the country towards a mixed economy system[102] (Arslan and Zaman, 2012).

At present, Pakistan is following a mixed economic system with a blend of Islamic laws. Before we discuss the effects of the Islamic economic system on Pakistan, we need to answer three questions: What is Islamic economic system? What is the degree to which it is implemented in Pakistan? And what are its effects on the foreign direct investments?

When banking practices are able to meet the requirements to be compliant with Shariah, or Islamic law, they are said to be Islamic Banking practices. These practices are open to all, and not reserved for Muslim-use only. It is worth noting that the participants in Islamic Banking need not be Muslim. The prohibited concepts in Islamic banking are "Gharar" uncertainty; "Maysir" gambling; and "Riba" Interest (Ayub, 2007).

[101] By 1977 the government controlled all domestic banking (90 percent of the finance sector), 90 percentof the energy sector (electricity, gas, and oil), 11 percent of the industrial and manufacturing sector, 50 percent of the transportation and communications sector, and 70 percent of the mining sector.

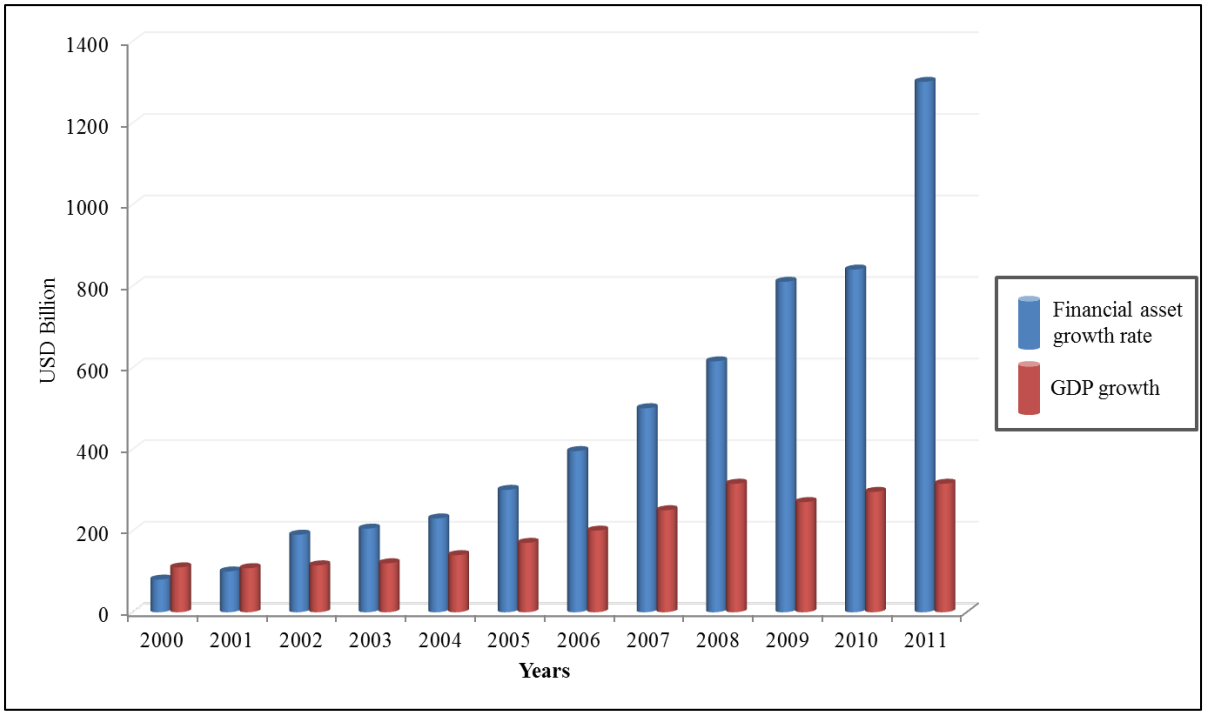
[102] An economic system which includes features from both planed economy and market economy is used by most of the nations in the world. This system is called Mixed Economy system. (Economic System of Pakistan by Syed Hassan Raza, 2014).

In its ideal form, the Islamic economic model combines the positive aspects of capitalist economy and socialist economy, while minimizing their negative consequences[103] (Ismail, 2013). Islamic economic system overcomes the deficiencies of both the systems because it is solidly-based on private-property and market-mechanism, but has also explicitly-built-in equity and distribution via compulsory-deduction of Zakat, i.e. transfer-payments from the asset holders to the poor segments of the population (Dikici, 2014). The Islamic economic model addresses the distribution issues explicitly after the market has allocated the gains. It does this by a compulsory deduction of 2.5 percent of tangible-wealth and net-asset-holdings from the incomes generated by the market mechanism. This is then allocated for transfer among the "vulnerable, sick, handicapped, indigenes and poor segments of the society" (Wilson, 2013). Although the deduction is compulsory, the transfers are made voluntarily by the well-to-do to their poor-relatives, neighbours and others whom they know to have legitimate needs (Azhar, 2010). In Pakistan, it is estimated that private transfers, made voluntarily to the poor, account for 2 percent of GDP annually (Shaikh, 2013).

Global Islamic finance has grown rapidly in recent years, and its volume passed US$ 2 trillion in 2014 (Gheeraert and Weill, 2015). The example of Dubai and Kuala Lumpur is an indication of the fact that foreign-investor-confidence is growing in Islamic Banking and Finance (Tabash, 2014). This is clearly evident from Figure 7.4, as the financial asset is exponentially growing in Islamic finance system in recent years. With the increase in the financial-asset-growth, the corresponding GDP growth can also be noted in Figure 7.4, which is clear indication of the growing confidence of investors in Islamic banking and finance system.

[103] These views are those of the author based on his study of the Islamic economic system and may not be necessarily accurate.

Another misconception about Islamic banking is that every investor has to follow these rules. In fact, the Islamic economic laws are only applicable on the banks having Islamic banking system. In Pakistan, Islamic banking industry represents only 10% of the overall banking system, with 19 banking institutions offering Islamic banking products and services (State Bank of Pakistan, 2014). Foreign investors need not necessarily opt for banking operations with Islamic banking, but can choose to rather go with the normal capitalist banking system, which represents 90% of Pakistan's banking sector.



Source:
Deutsche Bank, (2011)

Figure 7.4 Islamic finance assets growth Vs. GDP growth rate - UAE (2000- 2011).

7.6.3 **Other economical parameters.** The gap analysis in Table 7.2 draws a comparison of economic parameters between Pakistan and selected developing countries. Pakistan's GDP is below the average for selected developing countries, but it's within the allowable standard deviation for the selected countries. Selected countries' annual-GDP-growth-range is 1.1 - 6 %, with an average of 3.8 %. Thus Pakistan's GDP growth rate is in line with selected developing countries; however, there is still room for improvement and it should ideally be in

the range of 5-6 % annually (Table 7.2). The tax revenue/ GDP have an average of 23.3 % with ±7.3 % of standard deviation. Pakistan's tax revenue/ GDP of 11.9 % are well below the average and are not within the standard deviation limits. Unemployment is below the average, and is one of the areas where Pakistan has performed well. Poverty is below the average and within the allowable standard deviation for the selected countries (Table 7.2).

The range for the World infrastructure ranking is 15.1 – 66.5, with an average of 45.6 (Table 7.2). Infrastructure-development is the cornerstone of attracting foreign investment and is one of the indicators of progress of a country. Pakistan's infrastructure rating[104] of 118 is below the average and the ± 1 SD set as target in the thesis (Table 7.2). Selected countries' range for annual population-growth is -0.4 - 1.3 %, and the average is 0.9%. In contrast, Pakistan's population growth is exponential and needs to be controlled for prosperity and economic growth.

7.6.4 **Legal framework.** As mentioned before, Pakistan's legal framework is based upon the legal system of British India; as influenced by Islamic Sharia law. According to the customary law there are three types of land ownership; land held by state, land held by a private owner, or communal land (USAID, 2012). Land that does not fall under these categories, automatically fall under the control of provincial government (if within the territory of a province), or with the federal government (if in federal area) (GOP Constitution 1973). Ownership tenure is the common type of tenure in Pakistan (Anwar, Qureshi and Ali, 2004; World Bank, 2007; GOP, 2006). Mineral and petroleum legislation is covered under article 141 & 142 of the constitution of Islamic republic of Pakistan, 1973. A detailed comparison between the selected eight developing mineral-based economies and Pakistan is

[104] Infrastructure ratings are the average ratings of transport, electricity & telephony, information, communication and technology, education, health, security, and public institutions.

done in Table 7.3 (Also see Appendix F). The last column represents the gap between these selected countries and Pakistan's legal framework.

Table 7.3 Comparison of legal framework of selected developing countries with Pakistan.

S/No	Country	Constitutional article	Mining law	Remarks	Gap
1	Chile	*Organic Constitutional Law on Mining Concessions (1982)*	*Mining Code (1983)*	Chilean government also introduced "*Foreign Investment Statute of 1974*" for guarantees between the foreign investors and the Chilean State.	• No law allowing for special incentives for foreign investment. • No law on State guarantees between state and foreign investors. • Promotion of investment in the mining sector is never declared as national interest and top priority. • The post 18th Amendment scenario empowers all provinces/federal units for any matter related to minerals. This situation is negatively affecting the development of the mineral sector and is also hindering foreign direct investment due to confusion in the legal and regulatory framework for mining sector[105]. • The government has never tried to be an investment promoter and
2	Peru	Political Constitution of Peru	*General Mining Law of 1992*[106]	Amendments were done to *The Mining Investment Promotion Law (MIPL) of 1991* and the *General Mining Law of 1981*. The promotion of investment in the mining sector was declared as national interest and top priority.	
3	Brazil	*Article 176* of the Brazilian Federal Constitution of 1988	*The Mining Code (Act No. 227) of 1967*	• *The Mining Code* was amended in 1996 to provide a favourable environment for foreign investment in the mining sector. • The Mining industry in Brazil is waiting for the approval of the *New Mining Framework (NMF) (Bill of Law No. 5807/2013)*[107].	
4	Mexico	Mexican Constitution	*Mexican Mining Law of 1992*	The original *Mining Law of 1961* was amended in 1980 and 1992.	
5	Pakistan	*Article 141 & 142 of the constitution of Pakistan, 1973*[108]	*The National Mineral Policy 2012*[109].	• Post 18th Amendment scenario empowers all provincial governments/federating units for any matter related to minerals under their control. • Provinces are free to formulate regulation, detailed exploration, and mineral development and safety concerns of their minerals resources. • The geological/geophysical survey and mapping, national and international coordination and formulation of national policies and plans are federal responsibilities.	
6	India	*Seventh Schedule of the Constitution of India*	*Mines and Minerals (Development and Regulation) Bill, 2011*[110]	India also has framed *Mineral Concession Rule of 1960* and the *Mineral Conservation and Development Rules, 1988 (MCDR)*, for conservation and systematic development of minerals.	

[105] These views are those of the author based on his study of the Islamic economic system and may not be necessarily accurate.
[106] Consolidated in a single document of amendments done to The Mining Investment Promotion Law (MIPL) of 1991 and the General Mining Law of 1981.
[107] The Government has submitted the Law to the National Congress and is currently under discussion.
[108] According to the 18th Amendment to the Constitution, all other mineral resources are now under the direct control of provincial governments.
[109] Superseded, *The 1948 Act for the minerals and oil-gas sectors* and *National Minerals Policy-1995.*

7	South Africa	Mining Charter in 2002, amended as Mining Charter 2010	*Mineral and Petroleum Resources Development Act, 28 of 2002 [MPRDA]*[111]	Other laws that govern mining operations in South Africa are:- • The *Mine Health and Safety Act 1996 (Act 29 of 1996)* • *Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry (The Charter)* and the *Code of Good Practice for the Mineral Industry (Mining Code)* • *Mineral and Petroleum Resources Royalty Act, No. 28*	regulator as against being an active partner.
8	Kazakhstan	Constitution of the Republic of Kazakhstan	The *Subsurface Law of 2010*[112]	The *Kazakh Law on Foreign Investment (1994)* which sets out the legal framework for investment and state guarantees regarding investor's right.	
9	Turkey	Constitution of the Republic of Turkey	*Mining Law No 3213*, 1985. Further amended in 2005 by *Law 5177* and 2010 by *Law 5995*	The *Implementation Regulation on Mining Activities* dated 6 November 2010 and the *Mining Activities Permit Regulation* dated 21 June 2005 (amended from time to time) are also applicable to mining in Turkey.	

Sources: Updated
Ministry of Petroleum and Natural Resources of Pakistan
Government of Pakistan, The constitution of Islamic Republic of Pakistan, 1973
Foreign Investment Committee Republic of Chile, 1993
Government of the Republic of Chile
The World Bank, 2015
United Nations Industrial Development Organization
International Monetary Fund, 2015
Peru Overview, the World Bank, Accessed on 23 August, 2015
Metals Economics Group, 2013
Ministry of Justice, Brazil
Ministry of Mines and Energy, Brazil, 2015
Ministry of Law and Justice, India, 2007
Ministry of Mines, Government of India, 2008
Department of Justice and Constitutional development, Republic of South Africa
Government of the Republic of Kazakhstan, 1995
Ministry of Industry and New Technologies, Kazakhstan
Republic of Turkey Ministry of Justice
Ministry of Energy and Natural Resources, Turkey

[110] Amendment to the *Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act).*
[111] Replaced the Apartheid Minerals Act of 1991.
[112] Supersede *Subsurface Use Law of 1996.*

7.6.5 **Regulatory framework.** Granting and management of mining concessions in Pakistan are regulated by the Regulation of Mines & Oilfields and Mineral Development (Government Control) Act, 1948, together with related rules made under the Act (Ministry of Petroleum and Natural Resources, 2013). Minerals of Pakistan are administered by law, in addition to general rules on compliance and dispute resolution.

The Federal, four provincial and the federally-administered governments, administer their minerals through separate rules. Thus, the Federal Government administers the Act in respect of oil, natural gas and nuclear minerals, and the Provincial Governments administer it in respect of other minerals (Ministry of Petroleum and Mineral Resources, 2013). The administrative authorities responsible for the administrations of the Act are as per Table 7.4. Gaps in the regulatory regime are compared with Chile in Table 7.5 (Also see Appendix A).

Table 7.4 A summary of administrative authorities responsible for administration of minerals in Pakistan.

S/NO	Government	Authority
1	Federal	DG Petroleum and Natural Resources
2	Punjab	DG Mines and Minerals, Mines and Minerals Department
3	Baluchistan	DG Mines and Minerals, Baluchistan
4	Sindh	DG Mines and Minerals, Sindh
5	KPK	DG Mines and Minerals, KPK
6	FATA	DG Petroleum and Natural Resources
7	GB	DG Petroleum and Natural Resources

Source: Updated
Ministry of Petroleum and Natural Resources, Pakistan
Mines and Minerals Department, Punjab, Baluchistan, Sindh and KPK

.

Table 7.5 A comparison of Pakistani and Chilean regulatory regimes.

Category	Type of Concession	Authority	Tenure	Fees and taxes payable	Guarantees	Rights and obligations of the mining concessionaires
Chile	Exploration	By a resolution of the ordinary courts of justice[113] together with a first-come first-served licensing system.	4 years	0.5% - 4 %[114]	The holder has the right of property thereon, protected by the guarantee set forth in number 24 of article 19 of the Constitution of Chile.	Protected according to Title II & III of Organic constitutional law on mining concessions.
	Exploitation/ mining		Indefinitely	1% - 5%[115],[116]		
Pakistan	Reconnaissance License	Ministry of Petroleum and Natural Resources[117] for Federal resources and Ministry of mines and minerals of respective provinces.	12 months/ 3 Years	**Provincial:** Annual rent, bid money, royalty, surface rent (where state is the owner of land); Profits in case of share ownership **Federal:** Income tax, Corporation tax, sales tax and excise duty **Land owner:** No compensation except on account of surface rent and damages on account of mining State remains the owner of the mineral reserves	No state guarantee	Not specifically defined and protected in the mineral policy or act.
	Exploration License					
	Mineral Deposit Retention License	To successful EL holders	2 Years			
	Mining lease	Conversion of licenses auction in case of proven reserves[118]	30 Years			

Source: Updated
The Investment Climate Advisory Services, the World Bank
Chilean Copper Commission
International Development Research Centre, 2010
Fraser Institute, 2014
Ministry of Petroleum and Natural Resources, Pakistan

[113] If the State deems necessary to exercise its rights to exclusively explore and exploit grantable substances, it shall act through companies owned by it or those in which it participates, and constitute or acquire the respective mining concession that are authorized for that purpose in accordance with the constitutional regulations in force.
[114] Depending on the concession area from <= 100 – over 5,000 hectares
[115] Depending on the concession area from <= 100 – over 600 hectares
[116] Apart from this there is also a Annual Fees to Maintain Concession Rights (2% for exploration and 10% for exploitation/ mining concession)
[117] First-come first-served
[118] At expense of government

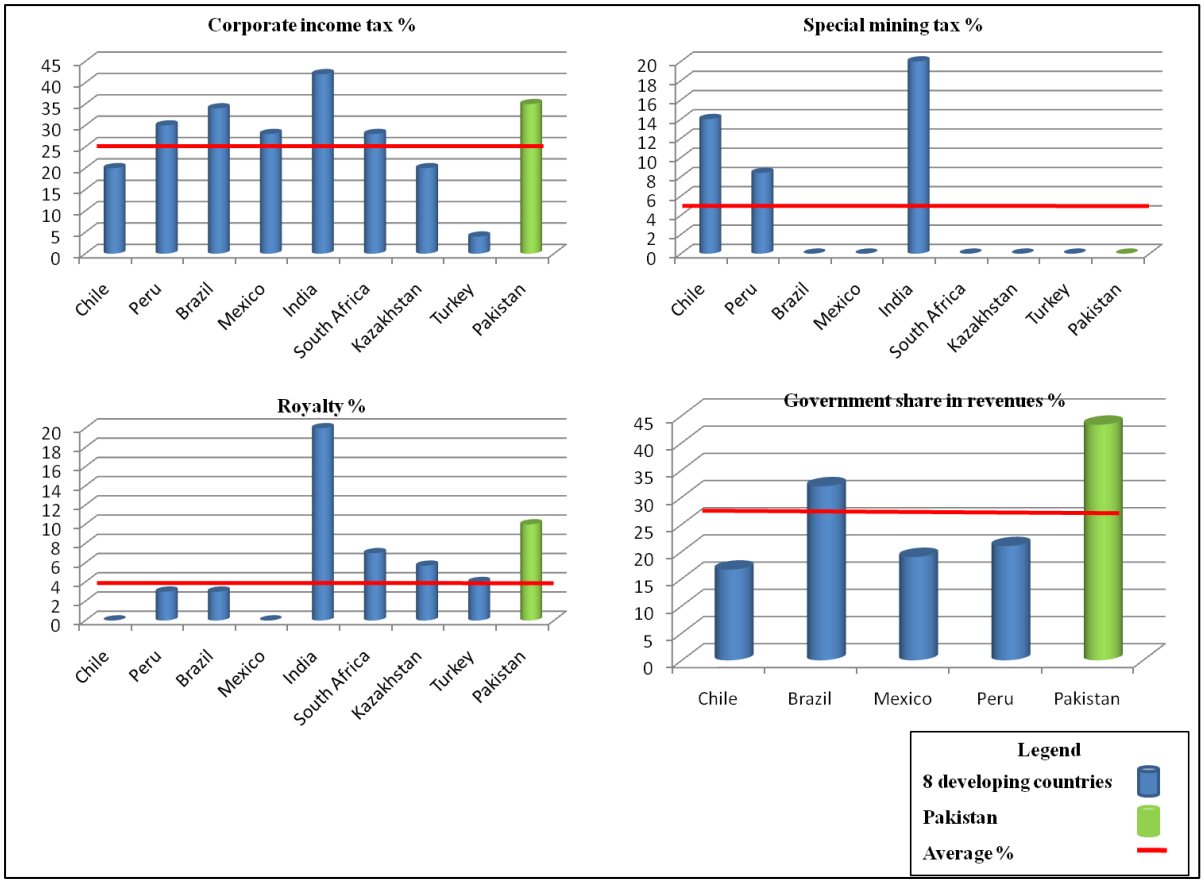
The comparison is done with Chile because it is fast emerging as a developing economy with the strong regulatory regime (The World Bank, 2014). Chile's system of mining licensing is one of the best in the world. The 2014 Fraser Institute survey ranked it as 6th most favourable policy and regulatory environment in the world, which is the highest ranking in the countries we have selected for gap analysis with Pakistan (Fraser Institute, 2014).

7.6.6 **Mining royalties and taxation.** A typical mining operation[119] anywhere in the world is generally subject to a wide range of taxes. Economics of a mining project are normally impacted primarily by three government imposts: corporate income tax; mineral royalty; and indirect taxes e.g. the customs duty. Pakistan's fiscal regime applicable to mining is defined in the NMP-2, which sets out a framework for federal and provincial taxes for the mining sector. Some key features of the fiscal framework include:-

- Corporate Income Tax @ 30 – 35 %[120]
- Import duty on plant, machinery, and equipment[121] @ 5 %.
- Royalty rates, as follows:
    - Precious stones @ 10% of gross value.
    - Precious metals and semi-precious stones @ 3% of gross value.
    - Base metals @ 2% of gross value.
    - Others @ 1% of gross value.

A comparison of the fiscal regime of mining sector of Pakistan with selected developing countries is done in Figure 7.5 (Also see Appendix A). It is clear that Pakistan's mining tax rates are higher in comparison with average for the selected countries (Table 7.6).

[119] A typical mining operation is the one which a foreign investor would typically be prepared to undertake.
[120] 30 % rate for public companies listed on a stock exchange in Pakistan and 35% rate for private or non-resident companies.
[121] Machinery not manufactured locally.



Source: Updated
The Investment Climate Advisory Services, the World Bank
Chilean Copper Commission
International Development Research Centre, 2010
Metals Economics Group, 2013
Ministry of Petroleum and Natural Resources, Pakistan
U.S. Geological Survey, 2013
Ministry of Mines and Energy, Brazil, 2015
Ministry of Mines, Government of India, 2015
United Nations Industrial Development Organization
International Monetary Fund, 2015

Figure 7.5 A comparison of the mining fiscal regime of selected countries with Pakistan.

Table 7.6 A comparison of royalties and taxes of Pakistan with selected developing countries.

S/No	Tax	Country								
		Chile	Mexico	Brazil	Peru	Pakistan	India	South Africa	Kazakhstan	Turkey
1	Royalties	Nil	Nil	0.2% - 3 %	1% - 3 %	1-10 %[122]	0.2%- 20%	0.5% - 7%[123]	1% - 5.7%	4%
2	Corporate Income Tax	20%.	28% and decreasing every year	34%.	30%	30 – 35 %[124]	33.22% for Indian companies & 42.23% for foreign companies.	28%.	20 %	4%[125]
3	Special Mining Tax	14%	Nil		2-8.4%	Import duty on plant, machinery, and equipment @ 5 %.	0.2% to 20%.		15%.	

[122] In addition, royalty on coal is being charged along with a 15% sales tax per tonne by government of Pakistan@ 0. 2 US$/ tonne; government of Punjab@ 0.35 US$/ per tonne; government of Sindh@ 0.6 US$/ per tonne and government of Khyber Pakhtunkhwa @ 0. 25 US$/ per tonne.

[123]The Mineral and Petroleum Resources Royalty Act applies variable royalty percentage rates based on whether the mineral is refined or unrefined. The minimum royalty percentage in the case of refined minerals is 0.5% and the maximum royalty percentage is 5%. And in the case of unrefined minerals, the minimum royalty percentage is 0.5% and the maximum royalty percentage is 7%.

[124] 30 % rate for public companies listed on a stock exchange in Pakistan and 35% rate for private or non-resident companies.

[125]Actual corporate tax for mining is 20% but it reduces to 4% for mining companies due to tax incentive.

7.7 Summary of gap analysis and best practice (Detail gaps in Appendix A)

The gap analysis of eight developing countries with Pakistan draws attention to political stability and continuity in their policy framework. The continuity is important because investors like the policy to continue unchanged due to the specific nature of the mining operation. Investors declared promotion of investment in the mining sector as national interest and top priority. The gaps, based on the leading practices which can be summarized from the analysis in this chapter, are:-

- **No continuity in the political system of Pakistan.** Continuity in policy through any form of government is necessary to build the confidence of foreign and local investors. The example of Chile, Brazil, Peru and Kazakhstan proves this conclusion, as there has been a substantial increase in investment in these countries due to their continuity of policy and system of governance.
- **No investment promotion incentives.** There are no special investment-friendly development zones in Pakistan. Other governments (especially the Latin American States) turned into investment-promoters and regulators as against being active partners.
- **No specific mining laws.** Specific mining laws geared towards attracting mineral investment were introduced by Chile, Peru and Kazakhstan, which guaranteed foreign direct investment in the mining sector. No such mining laws have been introduced in Pakistan and thus the industry is suffering from lack of investment.
- **No User-friendly regulatory body.** All the selected countries introduced user-friendly regulatory bodies for mining operations which opened their economic sector to foreign investments. No such effort has been made in Pakistan.
- **Poor communication of non-discriminatory fiscal system for local and foreign companies.** Investors are allowed to conclude a tax law stability agreement with Peru,

which gives them high confidence in investment. In the case of Kazakhstan, all the mining specific royalties and taxes were revoked in the 1990s to attract international investment in the mining industry. Although there are no discriminatory tax laws for foreign investors in Pakistan, it has never been properly communicated to investors.

- **No central coordination of mineral development.** Pakistan's decentralized control of minerals with individual provinces causes confusion. The distribution of regulatory control between federal-government and provinces is making the system more complex and difficult to work with. For example, separate mineral policies at the federal and provincial level sometimes create undesirable hurdles in obtaining mining concessions. In contrast, all selected countries had a central control of all minerals (State property until it is mined).

7.8 Conclusion

Chapter seven analysed the gaps between Pakistan's current mineral policy and leading developing-countries policies. A comprehensive analysis of leading practices was presented and then compared with the current situation of Pakistan. A gap analysis was performed and considerations for Pakistan were summarized, which will act as building blocks for the proposed strategic-fit mineral policy framework for Pakistan.

Chapter eight develops a mineral-development framework for Pakistan. It also attempts to formulate a structure for a legal framework that is in line with international leading practices, along with suggested measures to attract foreign direct investments.

CHAPTER EIGHT

MINERAL POLICY DEVELOPMENT FRAMEWORK FOR PAKISTAN

8.1 Introduction

The analysis in chapter seven identified key problems in Pakistan's mineral sector which need to be corrected. Chapter eight attempts to formulate a mineral policy framework that can bring foreign investment into the mineral sector by correcting the problems analysed in chapter seven. The analysis is based on the seven key elements[126] that were derived from Chapter Seven's analysis of eight developing countries' mineral-policy frameworks. These elements are:-

1. **Element 1:** Enabling institutional framework; (Critical element – also an enabler for elements 3-7)
2. **Element 2:** Political economy; (Critical element – also an enabler for elements 3-7)
3. **Element 3:** Legal framework;
4. **Element 4:** Regulatory framework;
5. **Element 5:** Fiscal framework;
6. **Element 6:** Stakeholders participation; and
7. **Element 7:** Sustainable development.

The first two elements are critical, and all other elements are dependent on these.

Element 1: Pakistan has a weak mining institutional structure. As introduced in Chapter Seven, Pakistan's mining industry is controlled by the Ministry of Petroleum and Natural

[126] An element is an essential or characteristic part of something. Element denotes a fundamental component and refers to a part that is essential to the making of a complete system. Key elements of a mineral policy are the components, constituents, or ingredients that are parts of the whole policy-formulation process, and subsequently, a good mineral policy.

Resources at Federal level and the corresponding Directorates or Departments[127] at the Provincial level. Pakistan's case of decentralized control over mineral resources (by individual Provinces) is confusing. The distribution of regulatory control to both Federal and Provinces is making the system complex and difficult to work with. The power structure of the Federal Ministry is linear and authoritative, where corporations and companies[128] are directly controlled by the Federal Minister of Petroleum and Natural Resources (Figure 8.1). The Ministry has four Wings[129] (Administration Wing, Mineral Wing, Development Wing and Policy Wing), one Attached Department[130] (Geological Survey of Pakistan), one Autonomous Body[131] (Hydrocarbon Development Institute of Pakistan) and eleven Private Companies Limited[132] (enumerated and shown in Table 8.1 & Figure 8.1 respectively) (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

The Administration Wing, Development Wing and Mineral Wing are each headed by a technocrat (DG admn[133], DG Development[134], DG Minerals[135]), whereas the Policy Wing is sub-divided into four departments also headed by technocrats (DG Oil[136], DG Gas[137], DG

[127]Directorate General, Mines and Minerals Punjab; the Minerals Development Department Khyber Pakhtunkhwa; the Mines and Minerals Department of Sindh; and the Mines and Minerals Development Department of Baluchistan.
[128] The corporations and private companies limited are semi-governmental organisations, but they are controlled by the government by appointing their managing directors.
[129] In this case, the Wings of the Ministry are subordinate bodies of the Ministry which are assigned different tasks.
[130]Attached departments are responsible for providing executive direction required in the implementation of the policies laid down by the Ministry to which they are attached. GSP serves as a repository of technical information and advice to the Ministry on geological and technical aspects. They generally function under the direction of an attached office, but in GSP's case, directly under the Ministry.
[131] Not controlled by others or by outside forces; independent in mind or judgment; and self-directed. However, in Pakistan, the Autonomous bodies are practically controlled by the Ministries. If an official becomes the head of such a body then he is governed by his service rules and not those of the Body, which dilutes the actual meaning of an Autonomous body.
[132] Pakistan Government has 51% shares in all Private Companies Limited. All heads of the Private Companies Limited are appointed by the executive, which leaves little room for self-governance in these companies.
[133] Director General Administration, a Senior Joint Secretary.
[134] Director General Development, a Senior Joint Secretary.
[135] Director General Minerals, a Senior Joint Secretary.
[136] Director General Oil, a Senior Joint Secretary.
[137] Director General Gas, a Senior Joint Secretary.

Petroleum[138], DG Special Projects[139], Figure 8.1) (Ministry of Petroleum and Natural Resources of Pakistan, 2013). The Policy Wing is responsible for developing policies for the Oil and Gas sectors, whereas the Mineral Wing formulate policy for the mineral sector[140] (Ministry of Petroleum and Natural Resources of Pakistan, 2013). The detail tasks and responsibilities of each Wing are given in Appendix G. The Attached Department, Geological Survey of Pakistan (GSP), is responsible for exploration of mineral potential through geological, geophysical, geochemical mappings and resource evaluation through drilling (Geological Survey of Pakistan, 2012). The Autonomous Body, the Hydrocarbon Development Institute of Pakistan (HDIP), is responsible for promoting and guiding scientific research and development in the field of hydrocarbons (Hydrocarbon Development Institute of Pakistan, 2014). The Ministry has eleven Private Companies Limited under its administrative and authoritative control (Table 8.1 and Figure 8.1) (Ministry of Petroleum and Natural Resources of Pakistan, 2013).

Table 8.1 Eleven Private Companies Limited under the control of Ministry of Petroleum and Natural Resource of Pakistan.

S/No	Mineral Sector	Petroleum Sector
1	Pakistan Mineral Development Corporation (Pvt) Limited (PMDC)	-
2	Saindak Metal Limited (SML)	-
3	Lakhra Coal Development Company (LCDC)	-
4	-	Oil and Gas Development Company Limited (OGDCL)
5	-	Pakistan Petroleum Limited (PPL)
6	-	Pakistan State Oil Company Limited (PSOCL)
7	-	Pak Arab Refinery Company Limited (PARCO)
8	-	Sui Northern Gas Pipeline Limited (SNGPL)
9	-	Sui Southern Gas Company Limited (SSGCL)
10	-	Inter State Gas Systems (Pvt) Limited (ISGSL)
11	-	Government Holding (Pvt) Limited (GHPL)

Source: Updated
Ministry of Petroleum and Natural Resources of Pakistan.

[138] Director General Petroleum, a Senior Joint Secretary.
[139] Director General Administration and Special Projects, a Senior Joint Secretary.
[140] Ideally, the Policy Wing should have been responsible for the policy development of Mineral and Mining sector also. This system of separate policy formulation departments for different sectors is creating confusion in the hierarchy of the Ministry and the investors.

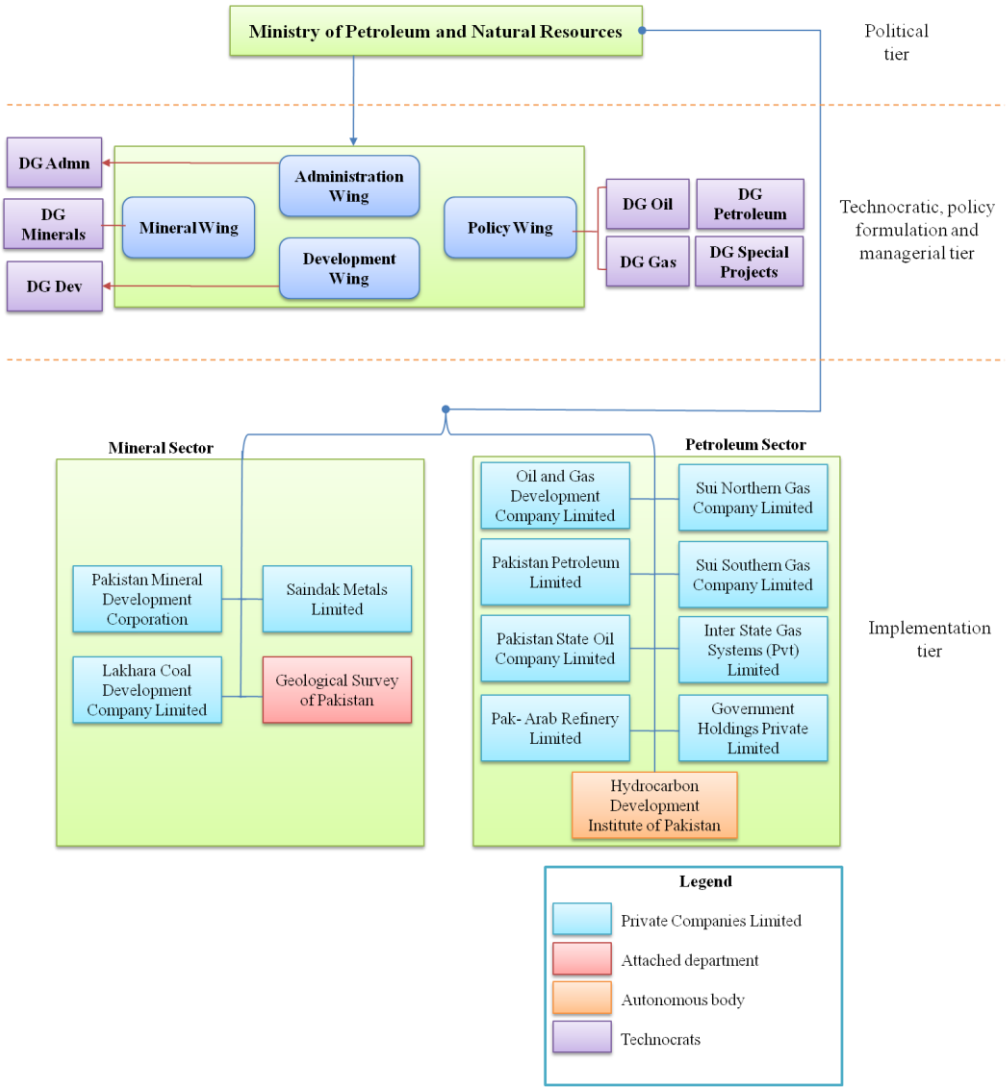


Figure 8.1 Organisational structures of Ministry of Petroleum and Natural Resources of Pakistan.

The organisational structure of the Ministry of Petroleum and Natural Resources of Pakistan is complicated and not in line with the generally-recognised structural scheme encountered internationally. If we compare the Ministry's structure in Figure 8.1 with the widely accepted model in Figure 8.2, there are some problems (gap) in the policy formulation tier:-

- Policy formulation is being done at the technocratic level instead of the political level;
- Separate Wings are responsible for policy formulation of Petroleum and Mineral sector[141]. Since two separate departments within the Ministry are responsible for

[141] The Policy Wing is responsible for policy formulation of Petroleum and Gas sector, whereas Mineral Wing is responsible for Mineral sector.

policy formulation, this is creating inconsistency and lack of coordination within the Ministry and with other Ministries; and

- Investors are caught in an organisational dilemma between the different Wings at the Federal level and between the Federal and Provincial authoritative control.

The organisational structure of the Ministry needs to change in line with the leading-practice to provide an enabling environment for investments.

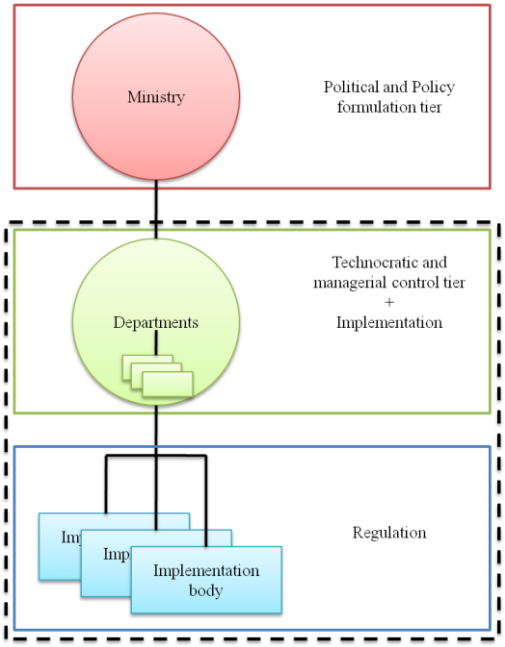


Figure 8.2 Generally-accepted scheme of organizational structure.

The second critical element listed at the beginning of this chapter, is the weak political and economic structure of Pakistan, which is prohibitive for attracting large foreign investments. This is mostly because of non-continuity of policies. Continuity in policy through any form of government is necessary to build the confidence of the foreign and local investors. Mining is an international business and Pakistan has to compete against developed and developing countries to attract foreign direct investment. It is important for Pakistan to provide a stable and growing political and economic environment to attract the already-depleting investment in the mineral sector.

Apart from these two critical problems discussed above, there are other problems which also need to be filled to attract substantial investment in mineral sector of Pakistan:-

- There are security of tenure and predictability problems with both the mineral and fiscal law and policy framework;
- Mining is an economic activity that involves decisions which take risk and uncertainty into account. Some of these risks are in the future, uncertain and not well understood. Corporations analyse these risks before an investment. This analysis is primarily based on the mineral policy of a country;
- Pakistan needs to formulate a mineral policy which is best-fit for its own environment and is also in line with the leading best-practice. This must then be aligned with the Pakistan reality and context; and
- Pakistan will have to offer a suitable environment for investment so that foreign investors can trust its mineral policy to facilitate investment in the mining sector.

8.2 Key Elements of Mineral Policy Development Framework for Pakistan

A successful minerals policy should ideally create the political, legal and administrative environment that is necessary to ensure a steady domestic and international supply of minerals to the society within the framework of sustainable development. All three components (i.e. political, legal and administrative environment) are considered to be equally important in this thesis. The review of mining practices of eight developing countries in chapter five and seven, helped define seven key elements for mineral policy development listed in section 8.1 (Figure 8.3):-

The first two elements (enabling institutional framework and political economy) are the most important, because other elements are related and dependant on them for effectiveness and consistency. The interdependencies and relationship of elements between each other are

shown in Figure 8.3. In a progressive and investor-friendly mineral sector, these seven elements should be inter-related and provide strength to each other. The strength of the institutional framework defines the effectiveness of mining laws and regulations, and ultimately reflects the confidence of foreign investor in a country's mineral sector.

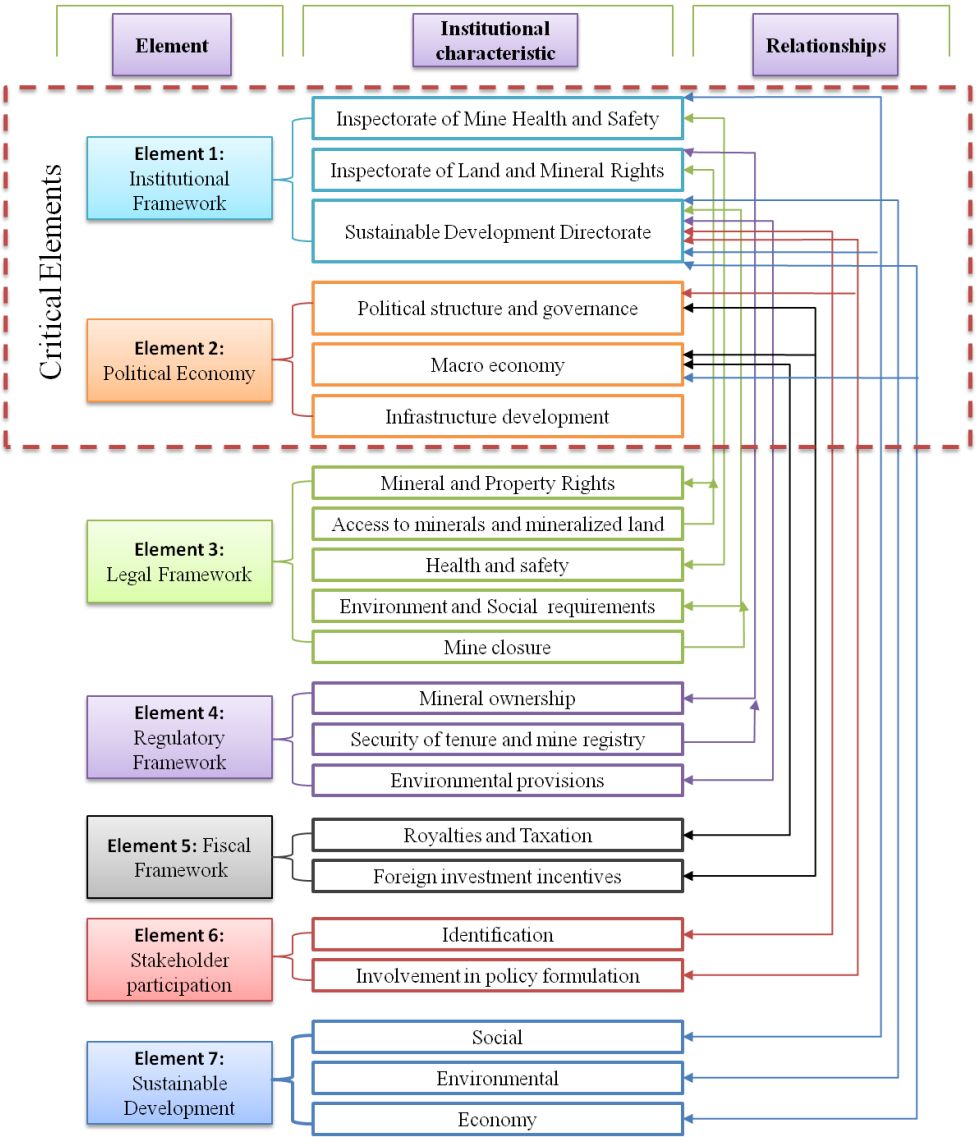


Figure 8.3 Key mineral policy elements and their inter relationship – development of mineral policy framework for Pakistan.

Figure 8.3 highlights seven key areas where structural and policy reforms are required for Pakistan to work towards the development of a sustainable and progressive Mineral Policy. This will guide the way the industry is run by bringing the much-needed stability and consistency required for attracting foreign direct investment. Figure 8.3 also highlights inter-

relationships and dependencies between elements. An enabling institutional framework of the Ministry is the most important element, as other characteristic elements require strong institutional backup for attainment of international standards and investor-friendly environment. For example, in the Regulatory framework element, the mineral ownership derives its institutional strength from Inspectorate of Land and Mineral Rights. Similarly, the environmental provisions require enabling institutional backup in the form of Sustainable Development Directorate (Figure 8.3).

8.3 Elements for Mineral Policy Development

This section discusses each element separately.

8.3.1 **Element 1: Enabling institutional framework.** The quality of a country's institutions is critical for governing growth and development. Strengthening institutions and organizations provides an opportunity to optimise the performance of national development (International Fund for Agricultural Development, 2013). Due to the parallel Federal and Provincial organizations responsible for the affairs of the mining industry in Pakistan, the current institutional framework is not providing a clear and transparent environment to investors. It is thus important to identify and develop enabling institutions for a strong mineral sector in Pakistan. Figure 8.3 provides an overall conceptual framework that is required for a productive mining sector in line with the leading best-practice. All the key mineral policy elements will require institutional backing to ensure continuity and accountability. The institutional reforms should ideally include the development of a new Ministry of Mineral Development with three sub directorates/ inspectorates:-

- Inspectorate of mine health and safety;
- Inspectorate of land and mineral rights; and
- Sustainable development directorate, providing guidance on:-

- Economics and infrastructure;
- Social benefits; and
- Environmental protection.

The importance of institutional quality as an underlying factor which contributes to successful policy-implementation can never be underestimated. This factor is clearly dominant in the analysis done for the eight countries. Both Brazil and Chile have reliable private-sector institutions such as an independent judiciary, a civil service reputed for its integrity and competence, and independent institutions functioning as checks and balances (Nogueira da Costa, 2010). Both these countries have strong ministries of finance and mining for controlling mining operation in their respective countries (Davidson, 2014).

In the last twenty-five years, Pakistan's institutional stability and quality have slipped from honest institutions to being perceived as corrupt and dysfunctional (Hussain and Kokab, 2013). This slump has affected most institutions, from political to judiciary and civil services. The current institutional structure of the Ministry of Petroleum and Natural Resources is shown in Figure 8.1. Pakistan Mineral Development Corporation[142] (PMDC), a Private Limited Company responsible for the mining sector, is organised into project teams and mineral-specific sections. This situation leaves regulatory and other mining-related issues to be unaddressed (Organisation of Pakistan Mineral Development Corporation is given at Appendix C). There is a need to develop a more relevant and investor-friendly mining environment by strengthening institutions to become stable and corruption-free. In order to address these institutional issues, Pakistan needs to separate the Mining Industry from the Ministry of Petroleum and Natural Resources, and create a new Ministry for Mineral Development. The new Ministry should be named as Ministry of Mineral Development, whose suggested organisation and task are given in Figure 8.4 and Appendix D respectively.

[142] A subordinate Private Company Limited, looking after the daily affairs of the mining sector, directly controlled by the Ministry of Petroleum and Natural Resource.

The new Ministry can be organised into three basic inspectorate/ directorates (Figure 8.4). First, an Inspectorate of Mine Health and Safety should be responsible for implementing and regulating policies regarding safety and security of the mines, health issues and labour issues. Second, an Inspectorate of Land and Minerals Rights should be responsible for translating policy into formulation and regulation of mining laws for exploitation of mineral resources. The purpose of mining law is to regulate all activities, so that problems like disputes over ownership are minimised. In the past, mining caused problems in developing countries where the rights of the surface-owner and the mineral-owner were in conflict. A clear definition of these rights in a clearly-drafted Mining Law will avoid such conflicts. Security of tenure is also very important to ensure a predictable return on investment over the life of a mine, and to avoid ownership-disputes. Third, the Sustainable Development Directorate should be responsible for beneficiation economics, social development and environmental protection.

A Mining Cadastre is the cornerstone of a secure, mineral-rights system which records the geographical location, ownership and time validity of mining rights. A good mining policy must be supported by a Mining Cadastre System. The non-availability of a Mining Cadastre System in Pakistan is hindering generating data per international standards for facilitating local and international investment. In order to effectively facilitate and benefit stakeholders in the mineral sector, Pakistan needs to develop a modern Mining Cadastre System which provides geospatial data, available online through a Geographic Information System (GIS). Successful implementation of a modern Mining Cadastre System requires the development of a database containing mining licenses together with their status, location, ownership, fees and dues paid, and other relevant information. A new Mining Cadastre System should be developed at the Geological Survey[143] of Pakistan by creating a new Directorate of Mining

[143] The geological survey of Pakistan should also be brought under control of Inspectorate of Land and Minerals Rights.

Cadastre and GIS Database[144]. This new directorate should be in direct coordination with the Inspectorate of Land and Minerals Rights (Figure 8.4). The new suggested organisation of the Geological Survey of Pakistan is shown in Figure 8.5. (Present organisation of GSP is given at Appendix E).

Other details regarding organisational-structural reforms of the Ministry and Geological Survey of Pakistan are given in Appendix D.

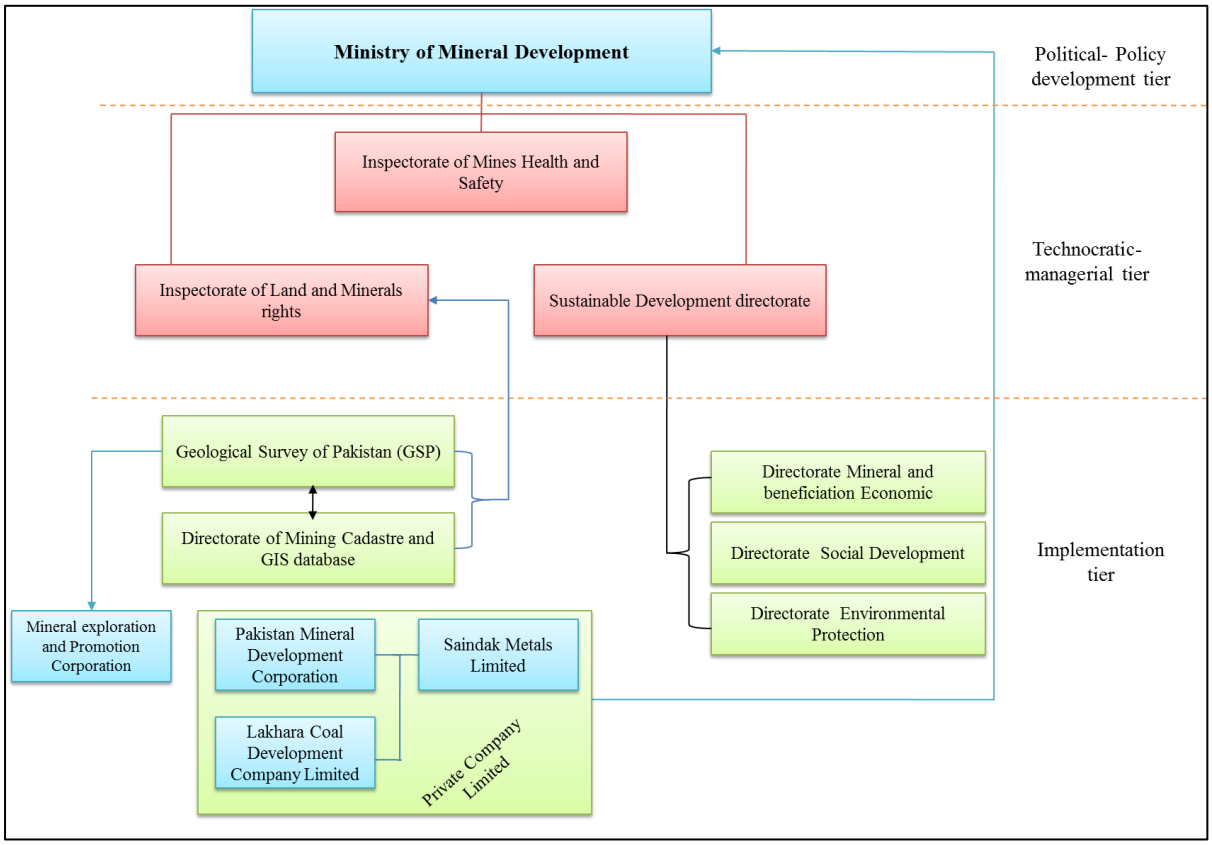
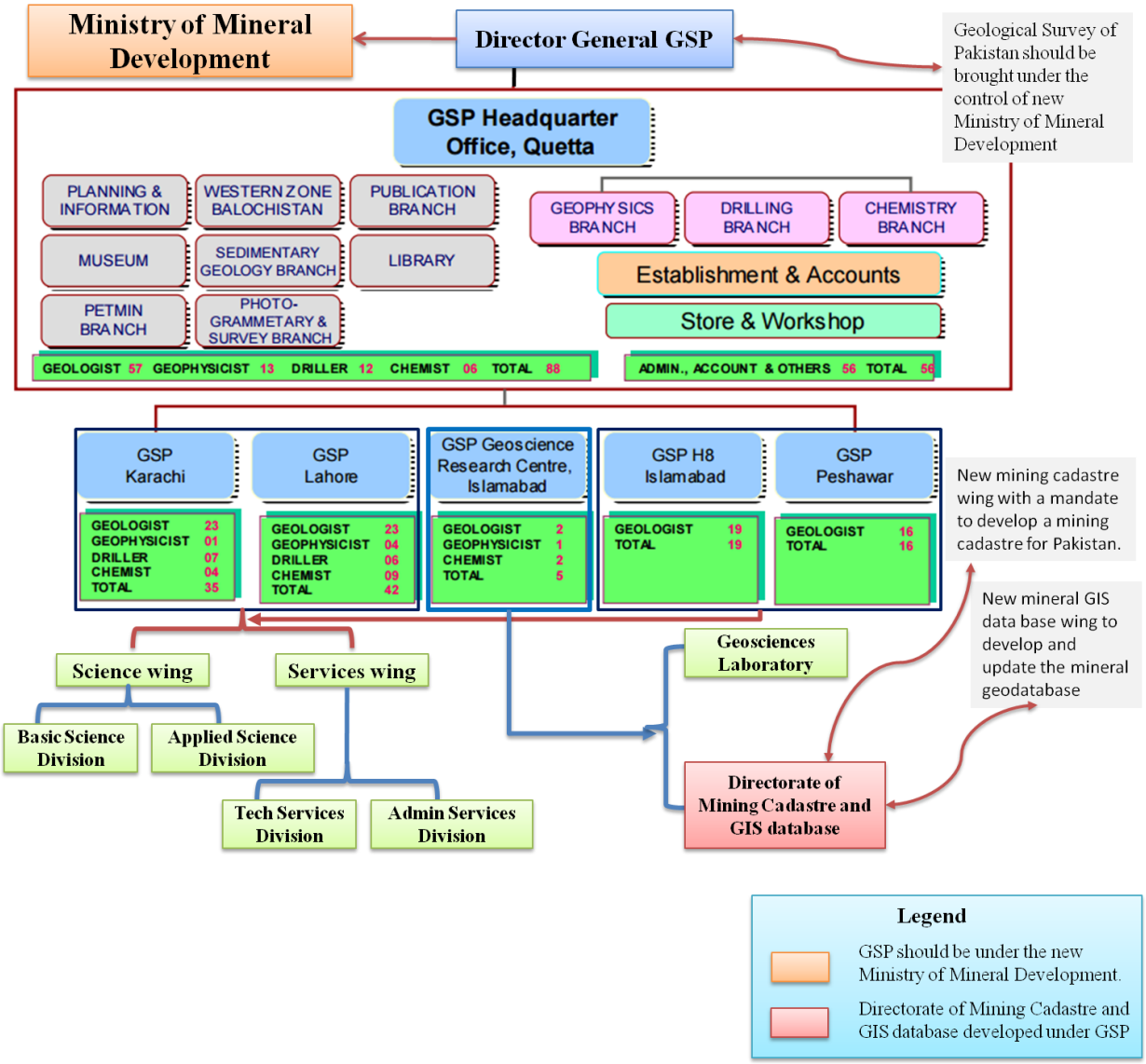


Figure 8.4 Suggested Organisation of the Ministry of Mineral Development for Pakistan.

[144] Pakistan should look towards establishment of a Mining Cadastre System, like FlexiCadastre from Spatial Dimensions Inc. Spatial Dimension is a leading mining Cadastre solution in the World and their systems are in operations in different countries around the world e.g. Greenland, Zambia, Tanzania, DRC, Mozambique, Liberia, Senegal, Cote D'Ivoire, Uganda, Ethiopia, Rwanda and Kenya.



Source: Updated
Geological Survey of Pakistan, (GSP)
Ministry of Petroleum and Natural Resources

Figure 8.5 New suggested organizational structure of Geological Survey of Pakistan (GSP)

8.3.2 **Element 2: Political economy.** A politically-stable country with a growing economy will attract more mineral-led foreign investment as compared to a politically-unstable government with a weak economy (Owuor, 2014). Pakistan has a fragile political and security environment, not suited for the confidence required to attract foreign investments. During the course of the research, a close examination of the mineral policies and framework of developing countries Brazil, Chile, Peru, Mexico, India, South Africa, Turkey and

Kazakhstan revealed that political economy is the first and important step to attracting foreign investments.

Pakistan needs to foster a political economy which is friendly towards foreign investors and multinational mining corporations. Following are some of the reforms that should be taken in political and economic sector:-

- Political dispensation and form of governance;
- Economics for national benefits; and
- Infrastructure development.

The analysis in chapters five and seven helped standardize a best-practice for the development of countries based on their mineral potential. Appendix F highlights the best-practices of the eight selected developing mineral-based economies in the field of political economy. It also suggests the strategic-fit actions for Pakistan to work towards an investor-friendly and more predictable and transparent mineral policy. Pakistan has to take advantage of its strategic location to boost its economy. The newly-started China Pakistan Economic Corridor (CPEC) should be utilized to benefit the mineral and mining industry (details are given in Case Study 2).

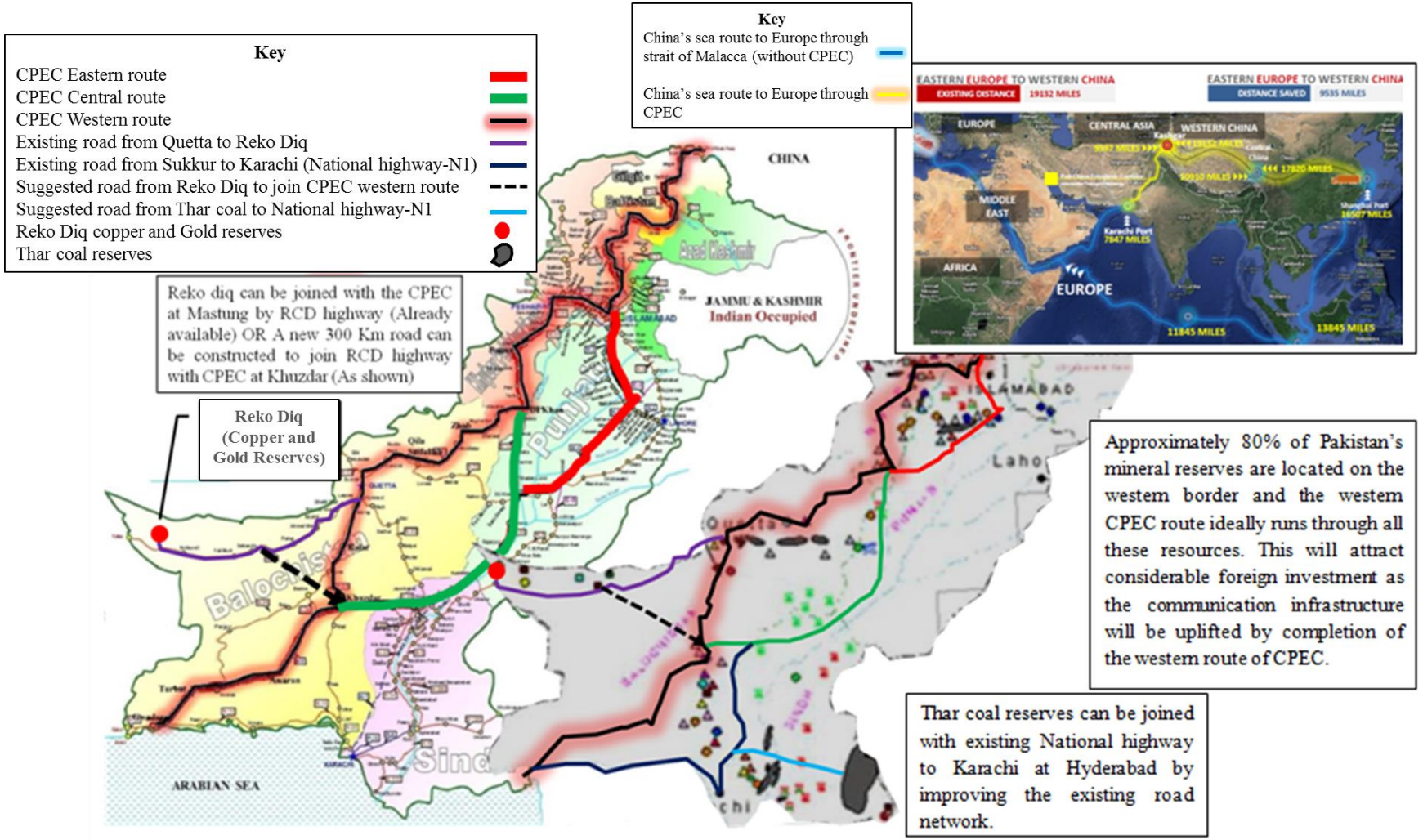
Case Study 1: China Pakistan Economic Corridor (CPEC)

China is growing rapidly as the world's supreme economy through its trade and exports all around the world. China is also importing oil from the Middle East for its ever-increasing energy demands. Pakistan is strategically important for China as it links China to the Southern Asian region, Middle East and Eastern Europe. China Pakistan Economic Corridor (CPEC), will save 15256 Km (9535 Miles) of distance for China for its exports and oil imports (Figure 8.6).

The port of Gwadar provides China an easy access to the Arabian Sea to fulfil its energy resources. The propinquity of Gwadar port with the sea lane and the Silk route towards Kashgar also makes Pakistan geo-strategically valuable for China, as it cuts more than 10,000 km of its route to trade and import oil through the sea. As the nearest port to the Strait of Hormuz, Gwadar port is strategically significant as it can become an international business hub like Dubai.

Trade is not the only motivation from the CPEC. The project will also help Pakistan deal with its volatile security situation, since more investment means more jobs and less poverty. The western CPEC route will pass through the province of KPK and Baluchistan which are rich in mineral resources (Figure 8.6). This will help with an improved infrastructure and a better security-environment, which are the basic ingredients to attract foreign investments. The proposed western route of the CPEC will connect the world's fifth-largest Gold and Copper reserves at Reko Diq and Saindak in Baluchistan with outside World. The central route of CPEC will connect the second-largest reserves of Salt in Punjab and sixth-largest reserves of Coal in Sindh with rest of the World (Figure 8.6).

This improved infrastructure of CPEC has the capacity to attract Chinese mining investment, which, in turn, will also attract foreign direct investments, as the investor will see it as a profit-opportunity with certain inherent guarantees.



Source: Google maps (Updated)
Geological Survey of Pakistan (Updated)
World Bank (Updated)

Figure 8.6 Importance of CPEC for mineral sector of Pakistan-Western CPEC route to boost the infrastructure around mineral-rich areas.

8.3.3 **Element 3: Legal Framework - Existence of a clearly-defined legislation.** Clearly-defined legislation will encourage investors to invest in the mining sector due to its inherent sureties and quarantines. Legal context in which mining is being conducted in Pakistan implies that the national mineral policy NMP-2 is playing the role of a "Minerals Law". Granting and management of mining concessions are regulated by the Regulation of Mines & Oilfields and Mineral Development (Government Control) Act, 1948, together with related rules made under the Act (Ministry of Petroleum and Natural Resources, 2013). The Federal, four Provincial and the Federally Administered Governments administer their minerals through separate rules.

Pakistan should have a strong mining legislation which will encourage investors to invest in the mining sector. These legislation initiatives should be backed by strong institutional setup as discussed in section 8.3. The new legislation setup should cover following legal aspects which are comprehensively covered in Appendix G.

- Mineral and property (land) rights;
- Access to minerals and mineralised land;
- Health and Safety;
- Environment and social requirements; and
- Mine closure.

8.3.4 **Element 4: Regulatory framework.** Regulatory approaches that ensure land-access as part of mineral rights and clear mechanisms to resolve disputes are needed, notably at the early stages of mine development (Example of Brazilian DNPM[145]). Investors typically

[145] The National Department of Mining Production – **DNPM** ("*Departamento Nacional de Produção Mineral*") created by Decree No. 23,079/1934 is a federal governmental autarchy subordinated to the Brazilian Ministry of Mines and Energy ("*Ministério de Minas e Energia*") ("**MME**") vested with administrative power to inspect mining undertakings and to enact ordinances governing the regulation of mining activities. The DNPM also has

expect a range of license possibilities and how they may be awarded (i.e., by application, by tender, by auction). Pakistan's Concession Rules rely on the auction of mineral rights and limit the types of licenses/leases. Review of how mineral rights may best be awarded and types of licenses to ensure the comprehensive and sound development of mineral resources should be done (Appendix G). Preparation of international-standard tender documents and model mineral-development agreements should be done in line with international best-practice[146]. Enforcement mechanisms should be clarified and meaningful penalties should be included. Pakistan should establish a working group to review the legal context of mining operations in Pakistan (Chilean economic working group in the 1970s[147]). Regulatory framework is discussed in Appendix G.

8.3.5 **Element 5: Strong treasury with an appropriate fiscal regime.** A typical mining operation[148] anywhere in the world is generally subject to a wide range of taxes. Experience shows that the economics of a mining project are normally impacted primarily by three government imposts: corporate income tax; mineral royalty; and customs duty. Pakistan's fiscal regime applicable to mining is defined in the NMP-2, which sets out a framework for Federal and Provincial taxes for the mining sector.

Mineral royalties in Pakistan are on the high side and they need to be reduced to the level where international investors will be comfortable. Pakistan can work on the example of Chile, which has a flat tax (not considered a 'royalty' itself) applicable to people who carry

a legal standing to impose administrative penalties on mining undertakings not performed in accordance with applicable requirements.

[146] The example of Chile and Peru should be kept in mind where tender documents and model mineral-development agreements are considered best in the business.

[147] During the early 1970's, the Chileans decided on a paradigm shift from a socialist economic environment to a more vibrant free-market economy (Taylor, 1998). In 1974, the Chilean government introduced the *Foreign Investment Statute* (Decree-Law 600), for guarantees between the foreign investors and the Chilean State. This law ensured free repatriation of profits and capital, tax stability and non-discrimination against foreign investors (Foreign Investment Committee Republic of Chile, 1993). The Chilean economic model was based on three basic principles, namely: free market economy; respect of property rights; and supporting role of the state (Brown, 1995).

[148] A typical mining operation is the one which a foreign and a local investor would typically be prepared to undertake.

out mining exploitation and achieve mineral sales over a certain volume in Chile. This tax is progressive and is charged on the operating income (taxable net income less operating expenses) of a mining producer, at rates ranging from zero (annual sales of less than 12,000 tons of fine copper or equivalent) to 4.5 percent (annual sales of up to 50,000 tons of fine copper or equivalent) (International Development Research Centre, 2010). Pakistan should offer royalty-based incentives, like Mexico where all the mining-specific royalties and taxes were revoked in the 1990s to attract international investment in the mining industry (Tetreault, 2014). However, revoking the royalties altogether may not be productive, because of hierarchy of claims, which can leave long-term negative implications. Thus a progressive formulated approach, which has incentives for both the government and investors, should be adopted and implemented. Comprehensive suggested mining tax rates are given in Appendix H.

Pakistan's corporate income tax rate is within the range of selected eight countries and can be left unchanged in the interest of stability. However, it can be reduced to 15 % (4% lower range + 11% SD) as an incentive to foreign investors. This rate should be flat and same for all types of investments not linked to the amount of investments (Appendix H). The calculations are also confusing because turnovers not exceeding Rs. 250 million[149] have been allowed the benefit of a reduced corporate tax rate of 25% against the normal corporate tax rate of 35%. This reduced rate on low investment vis-à-vis higher rate for high investment is also a negative factor for attracting foreign investments.

Specific mining withholding tax (6% - 15%[150]) is also within the range of selected eight countries and can be left unchanged in the interest of stability. Special mining incentives law

[149] 2.39 million USD as per exchange rate of Feb 2016.
[150] Withholding tax that includes dividends @ 10%, Non-Resident Contractors @ 6% and 15% shall be deducted from the gross amount paid to a non-resident person on account of royalty and fee for technical services.

should be made where Specific Mining Tax may not apply to foreign investors that had signed foreign-investment contracts with the Pakistani government. A reduced SMT can provide an incentive to foreign investors to invest in Pakistan's mining sector. In Chile, the Specific Mining Tax rate is 14%, but it may not apply to foreign investors that had signed foreign-investment contracts with the Chilean government under Decree Law 600 including mining tax invariability (Foreign Investment Committee Republic of Chile, 1993). Pakistan should also study the Brazilian example where the rate is only 1 – 2%, and is called the Compensation for Exploitation of Mineral Resources (CFEM) (Ministry of Mines and Energy, 2015), and the Peru's example where the Specific Mining Tax rate is based on a sliding scale, with progressive marginal rates ranging from 2% to 8.4% of a company's operating profits (Vásquez Cordano and Balistreri, 2010).

Mining special incentives, as highlighted in NMP 2, are not sufficient to attract substantial foreign investment in Pakistan. Pakistan should announce comprehensive mining incentives under the constitutional cover and promulgate Special Mining Incentive Act which should include (also covered in Appendix H):-

- Under the constitutional Act, firms that bring capital, physical goods and other forms of investment into the country should be asked to sign a foreign-investment contract with the government. The regulation should include a specific clause for the mining sector which grants investors a fixed corporate income tax rate for 10 years.
- International standard tax regulations and access to capital sources through lines of credit should be offered to foreign investors.
- There should be no limitation on the repatriation of capital, and reinvestment of profits should be considered as an increase of the original capital for the purposes of the law.

- To encourage foreign investors, distinction between foreign and national capital should be eliminated. Guarantees of legal protection for investor's' activities should be provided in all parts of the territory of Pakistan. This should be thoroughly debated and worked out with provinces to enable a single Government of Pakistan legal guarantee of any legal misappropriation during or after the mining contract[151].
- There should be constitutional guarantees for free access, possession, and disposal of foreign currency. There should also be special guarantees for the protection of the investor's' rights during nationalization and requisitions.
- Investors should be given a choice to conclude a tax law stability agreement with the government. Furthermore, no enhancing of royalty on minerals during the period of a contract should be provided.
- Provision of Act to develop Special Economic Zone (SEZ) which is eligible for a tax holiday.
- 50% less royalty for companies creating value-add by processing minerals in the country. This will encourage foreign mining companies to process the minerals in Pakistan, and will thus provide a much-needed boost to the national economy by the creation of new jobs and uplift of the mineral-rich poor areas of Pakistan.

8.3.6 **Element 6: Stakeholder participation.** The involvement of stakeholders positively affects the policy formulation, adjustment, development and implementation (Schalk, 2011). By interacting with stakeholders during the policy formulation process, the impact and results can be supervised and adjusted according to the national objectives. Local government players should increasingly be involved in interactive policy-making to enable the non-government actors in decision-making (Denters, 2003). In the absence of local government, it would be extremely difficult for non-government stakeholders to play their part effectively in

[151] To provide confidence to foreign companies, the legal dispute between Baluchistan province and the Tethyan Company should be resolved according to law and should not be repeated.

policy formulation. The goal of stakeholder involvement is to maximize the performance of policies and give a future guideline on legislation.

By analysing the power and impact matrix, (Figure 6.3, chapter six), critical stakeholders were identified. As introduced in section 6.6.1-onward analysis, some of the measures that Pakistan needs to take vis-à-vis six identified stakeholders at different stages of the policy development process are:-

- **The Government, its subsidiaries, and implementation bodies.** The Government of Pakistan is a key internal stakeholder in the formulation of mineral policy, as it directly affects the policy formulation process. An important aspect of Pakistan's mineral policy is that the resources are the property of the Provinces, but the policy for their utilization and beneficiation is formulated at the Federal level. This paradigm needs to be shifted, and only Federal Government should be responsible for policy formulation and its implementation. All the mineral resources should be the property of the Federal Government and legislation to this effect should be made by consultation with all the Provinces (Discussed in Appendix D).
- **Mining industry.** The mining industry will always be an important stakeholder for any mineral-related policy and implementation process. Mineral extraction and beneficiation have adverse effects on biodiversity and the environment. A complete theme should be developed on how a mining corporation should act to do no harm to the environment, people, and social values. Corporations normally tend to get quick and large profit from mining, thereby neglecting responsible mining practices. Such neglect can ignite conflicts with surrounding communities and have severe environmental impacts. Corporations' role as a key stakeholder in the policy

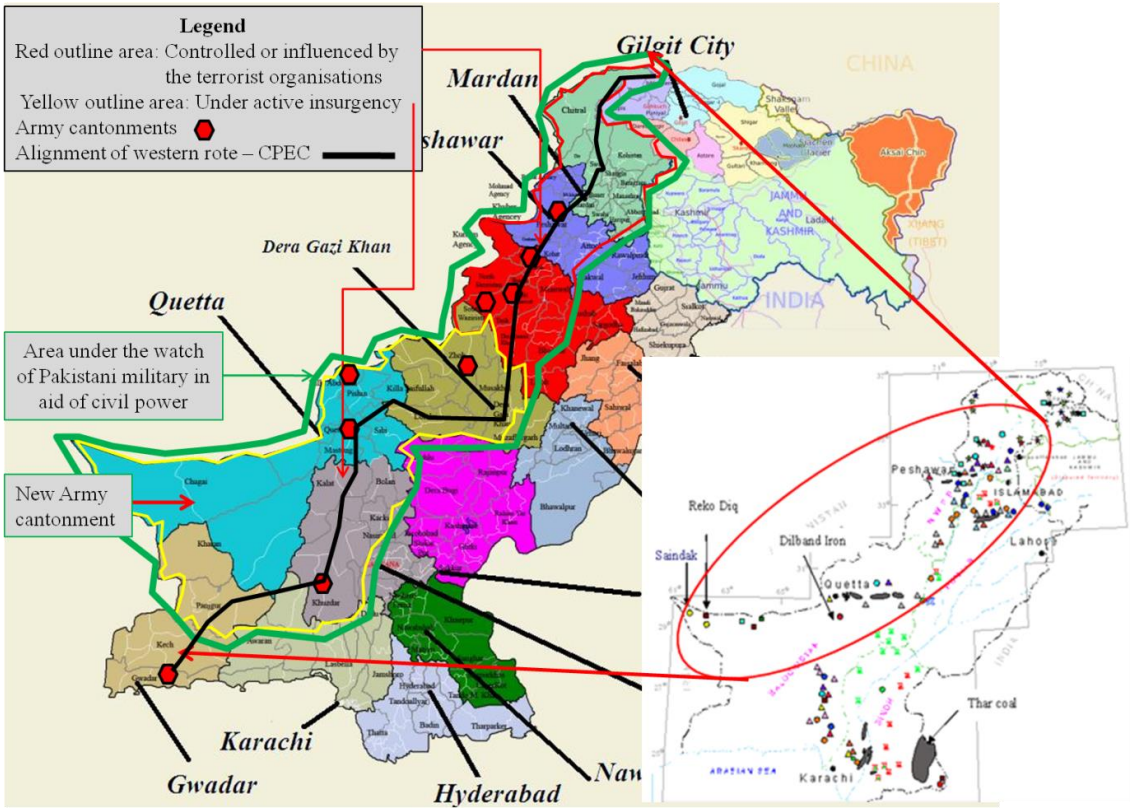
formulation will address their genuine concerns and also ensure that responsible mining practices are followed.

- **Local communities and their representatives.** According to the census held in 2011, Pakistan's total population is 183 million (Brinkhoff, 2012) with a total area of *803,940* Km. Pakistan's mineral-rich areas are in the province of Baluchistan, Sind and Khyber Pakhtunkhwa (KPK). 70 % of the population of these provinces lives in rural and remote areas (Table 6.3 – chapter six). 98 % of the total mineral-wealth of Pakistan is in the provinces of Baluchistan, Sindh, and KPK (Ministry of Petroleum & Natural Resources Government of Pakistan, 2013). Since there is no local community involvement in the policy formulation process, armed-conflict-elements in the local community disrupt both production and further exploration in the area. For a successful mining operation 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 development of these people to refrain them from any armed conflict.
- **Law enforcing agencies (LEA's).** Foreign investors are reluctant to invest in Pakistan due to the precarious security situation and the fact that 90% of the minerals are present in the areas where the security situation is worst (Figure 8.7). Over the years, the role of LEA's has become vital for ensuring the security in the western part of the country. Pakistan Army is given the responsibility to fight the internal security threats. Figure 8.7 shows the active cantonments of Pakistan Army adjoining the areas where it is fighting against terrorism and insurgency. These cantonments are covering all the western mineral-rich parts of Pakistan (Figure 8.7). The new proposed China Pakistan Economic Corridor (CPEC) western route also passes through these cantonments (Figure 8.7). Army should be asked to provide security to mineral rich areas, which will greatly improve the security situation in these areas. The

consultation of the army as a stakeholder is important due to its prolonged presence in the mineral-rich areas of Baluchistan, KPK and Federally Administered Tribal Area (FATA). Their involvement in the policy formulation process is vital for three reasons:-

- The military has the intelligence and understanding of the activist and terrorist groups operating in those particular areas.
- Without consultation with the military, the intensity of the threat is difficult to measure, which will result in critical gaps in the policies on the security situation.
- Detailed input from the military is also necessary for the implementation-plan of the policy in the mineral-rich areas.

The current situations in Baluchistan, KPK and FATA merit consulting the Army as a stakeholder to undertake any mining venture. Army should be asked to establish a new cantonment in Dalbandin (close to Reko Diq), so that it can improve the security situation in areas close to the copper and gold reserves (Figure 8.7).



Source: Updated
The Kansas free press, 2014
http://www.kansasfreepress.com/2009/12/final-report-from-the-nation-cruise-terrorism-justice-and-politics.html
Ministry of Interior Affairs, Government of Pakistan, 2014
Ministry of Defence, Government of Pakistan, 2014

Figure 8.7 Location of mineral resources and role of Army in providing security to mineral-rich areas of Pakistan.

- **Religious Monarchs.** Pakistan's cultural diversity and religious structure have formed a complicated framework which has an impact on legislation. A foreign investor perceives Pakistan as a society with strict Islamic laws, where investment guarantees are non-existent. The situation is totally different if we follow the true spirit of Islamic laws. For this very reason, it is necessary to include true religious scholars in the policy formulation paradigm. They are very important stakeholders as they control almost 70% of the country's population living in the rural areas. True enlightened religious scholars should be asked to contribute to harmony in the society, thus

enhancing an enlightened and progressive image of the country necessary for foreign investors to invest in Pakistan.

- **Financial institutions.** Pakistan has a stable and growing banking sector with 9 independent development finance banks (State Bank of Pakistan, 2015). Although the State Bank of Pakistan is an autonomous body-, in practice it operates under the Ministry of Finance. It should be made fully autonomous so that it can exert a positive role in strengthening the economy and the banking system. There is a need for time to consult and involve financial institutions in policy-making, including the executive financial departments of government and the Ministry of Finance.

8.3.7 **Element 7: Sustainable mineral development.** Mineral Resources are the key driver for economic growth. They have the potential to transform societies and economies. The extent to which these transformations take place varies. Countries with mineral resources are faced with both opportunity and challenge. Opportunity, because if used wisely, it will bring economic growth and prosperity; and challenge, because if used without adequate planning, it will instil economic instability, social conflict and environmental degradation. Pakistan should not overlook the sustainability-aspect of the natural assets and should take care not to design policies that obtain short-term gains while ignoring long-term implications.

Mining has adverse effects on the environment and social life if environmental issues are not properly addressed. The environmental effects of mining include disrupted biodiversity, and contamination of surface, ground and downstream water resources, whereas cultural adjustment is one of the effects to the local communities. Most of the negative effects of mining are avoidable if we define policies aimed at responsible mineral-development standards, as developed by the international organization. The policy development framework

for Pakistan should achieve the intersecting ground of three core issues, namely environmental, social and economic issues (Figure 2.1).

8.4 A **Summary of Strategic-Fit Measures for Pakistan**

With the help of the gap analysis in chapter seven, strategic elements for change are suggested in this chapter. These measures are based on the leading practices identified in the eight developing countries selected in this research. The measures' intent is for Pakistan to achieve the required results of a vibrant, progressive and investor-friendly mineral policy. A summary of important measures is:-

8.4.1 **Enabling institutional framework to provide an investor-friendly environment**

- Pakistan should separate mining and minerals from petroleum and gas resources by establishing a new Ministry through a constitutional amendment;

- Establishment of *Inspectorate of Mine, Health and Safety, Inspectorate of land and mineral rights and Sustainable development directorate* at *Ministry of Mineral development (MMD[152])*; and

- Under a *Sustainable Development Directorate*, the establishment of an *Environmental Protection Body* is required to monitor environmental compliance of different mining projects. This agency should also be in coordination with the *Pakistan Environmental Protection Agency*.

8.4.2 **Stable political economy is imperative for mineral development**

- Pakistan should remodel its political system to provide the much-needed stability and strengthening of the political institutions. The much-needed checks and balances in

[152] The new Ministry that should come into force after consultation and constitutional amendment, this should look after the business of mineral development and mining operations in Pakistan.

the system, and a constitutional role of the army, should be constituted to avoid frequent disruption of democracy due to perceived poor governance;

- The Chinese investments in CPEC can lift FY16-18 annual GDP growth substantially through direct impact (The Nation, 2016). Steps should be taken to avoid unnecessary political controversy[153] over the sequence of development of the different routes, so that the project can be completed within stipulated time-frames;

- Reko diq reserves (6,000 m tonnes of copper and 1656 m tonnes of gold) and Saindak reserves (618 m tonnes of silver and 1400 m tonnes of iron) should be joined with the CPEC at Mastung by RCD (N-25) highway (already available). Alternatively, a new 300 Km road should be constructed to join RCD (N-25) highway with CPEC at Khuzdar (Figure 8.7). Thar coal reserves (186 billion tonnes) should be joined with existing national highway at Hyderabad by improving the existing road network; and

- Both these new highways should officially be made part of the CPEC to catch the eye of the world. This, in turn, will raise foreign-investor interest in the mineral-resources that these roads will link.

8.4.3 **Regulatory and legal mining reforms**

- The promotion of investment in the mining sector should be declared as national interest and top priority. The Ministry of Mineral Development should formulate a new mineral policy which should cover all aspects of mining;

[153] Political parties from Khyber-Pakhtunkhwa (KPK) and Baluchistan have accused the ruling party of ignoring the smaller provinces in the multi-billion dollar project. Their concern is about the time relegation of the western route which will pass through these provinces, and more-importantly, through the mineral-rich western part of the country.

- Mineral ownership should be revised in favour of the State[154] by vesting it in the State, with Parliamentary oversight over the Provinces;

- The introduction of a new law on Foreign Investment, which should provide special guarantees between the foreign investors and the Pakistani State. This law should ensure free repatriation of profits and capital, as well as tax stability and non-discrimination against foreign investors[155];

- The establishment of mining rights registry, Mining Cadastre System and GIS-based mineral database under the Ministry of Mineral Development. This GIS information should be made freely available to all-and-sundry via internet, providing investors a clear view of Pakistan's mining operations;

- An amendment to the *Pakistan Environmental Protection Act 1997* whereby, the new legislation should protect the environment and the property-owner (operator) to meet certain requirements and to accept certain responsibilities; and

- Transparent award of concessions via a non-contentious legal process based on the 'first-come–first-served' principle.

8.4.4 **Fiscal regime reforms**

- A new Constitutional Act on foreign-investment contracts with firms that bring capital, physical goods and other forms of investment into the country, with said-act eliminating the distinction between foreign and national capital;

[154] However, this amendment should not be done at the cost of inter provincial harmony, in which case a method should be device where the investor should feel guaranteed in mineral ownership.
[155] Refer to Appendix 3.

- Provision of a Mining Act to develop Special Economic Zones (SEZ) which are eligible for a tax concessions;

- Guarantees of the legal protection for investor's' activities in all parts of the territory of Pakistan and for the protection of the investor's' rights during nationalization and requisitions; and

- To attract international investment in the mining industry, mining royalties should be set at a fixed minimum for five years[156]. After the five year period, a progressive royalty should be charged, taking account of economic cycles and ability to pay, and subject to a maximum rate of 5 % of turnover revenue.

8.4.5 **Stakeholder's involvement in policy formulation process**

- Involvement of all relevant Ministries and stakeholders in the policy formulation process;
- Involvement mechanism of the local community and local governments in the policy formulation process; and
- Improvement of the security situation in mineral-rich areas by incorporating Pakistan Army. The military should constitutionally be made part of the policy-formulation process. In addition, the army should establish a new cantonment at Dalbandin (close to Reko Diq), so that it can improve the security situation in areas close to the copper and gold reserves (Figure 8.7).

8.5 **Conclusion**

Chapter eight is an attempt to develop a strategic fit for the development of a mineral development framework for Pakistan. This chapter suggested measures for political,

[156] This should be done very carefully not to provoke any provincial disharmony as provinces' share of budget is going to be reduced by revoking the royalty.

economic, institutional, regulatory, legal, fiscal and stakeholder's involvement in policy formulation process. It also suggests measures to attract foreign direct investments. These measures are based on the analysis of eight developing countries performed in earlier part of the research.

Chapter nine will propose the implementation plan for the newly developed policy framework of chapter eight. Chapter nine will also present the design criteria for a Mining Cadastre system for secure mineral rights system to attract local and foreign investments.

CHAPTER NINE

IMPLEMENTATION

9.1 Introduction

As discussed in chapter one, the aim of this research is to customize a mineral policy framework for Pakistan that suits its local conditions. A framework, when implemented, can significantly raise the contribution of the mineral sector to the country's economy. The analysis in chapter eight helped develop a framework for the new mineral policy of Pakistan. A comprehensive gap analysis was carried out to compare Pakistan with eight developing countries that were similar to each other in political, social and economic conditions. This helped standardize best practices that need to be implemented to enable Pakistan to exploit maximum benefit from its mining industry, which, as a result, will ensure maximum economic and social uplift of Pakistan's society. Chapter nine presents ways in which this new mineral policy framework can be implemented.

9.2 What is Policy Implementation?

Policy implementation is defined as "what happens between the establishment of an apparent intention on the part of the government to do something, or to stop doing something, and the ultimate impact in the world of action" (O'Toole, 2000). More specifically, policy implementation is the set of activities and operations undertaken by various stakeholders toward the achievement of goals and objectives defined in an authorized policy (Nilsen et al., 2013). The stage of execution of a policy by the responsible institutions and organizations is referred to as implementation. It is therefore evident that having a policy is one thing, but implementing it is another - and implementation is often the most challenging part (Wise, 2014). Clearly, the government is a key stakeholder, affecting nearly all aspects of mineral

development, and thus impacting many other key stakeholders. With this role comes the need for good governance, building strong institutions and employing laws and policies that honour the broader interests of society.

9.3 Policy Implementation Framework

Before the adoption of a new Minerals Policy Framework for Pakistan, it is necessary to develop a plan for its implementation. Capacity to implement policy measures and strategies, together with ability to monitor and evaluate progress towards achieving the set goals, are essential aspects of policy implementation (Bunker, 1972). It is common, especially in developing countries, for a well-designed policy to fail in achieving desired results because implementation plans either do not exist or are poorly designed and executed. There are several challenges which need to be addressed in order to capitalize on the mining opportunity that presents itself in case of Pakistan's mineral sector. These challenges include:-

- Creating an enabling-environment for conducting business through simplified and transparent access to mineral concessions, which, in turn, enables catering to the needs of a large range of mining stakeholders;
- Revising the fiscal and regulatory frameworks for mining to enhance the economic attractiveness of the sector;
- Focusing on environmental concerns, social responsibility and development of infrastructural facilities in mineral-bearing areas; and
- Finally, developing a comprehensive GIS (with Mining Cadastre) for mining.

Though a complete plan for implementation is out of the scope of this research, the essential building blocks for the implementation framework are highlighted below (Figure 9.1):-

- **Building block 1:** Implementing an enabling institutional framework and other key elements of mineral policy framework;
- **Building block 2:** Mineral database and Mining Cadastre System; and
- **Building block 3:** Monitoring and evaluation.

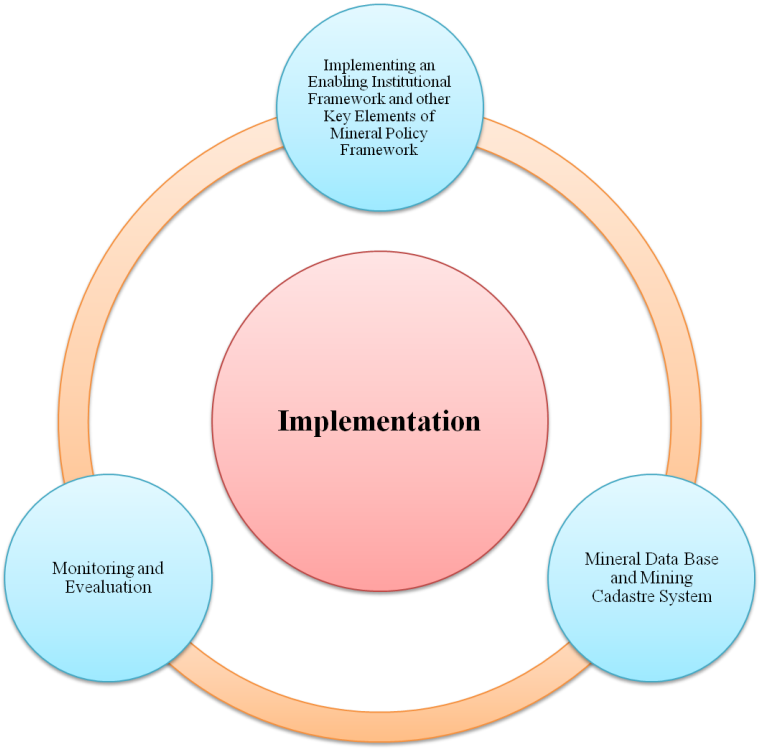


Figure 9.1 Building blocks for implementation plan of mineral policy framework for Pakistan.

9.4 Building Block 1: Implementing of an enabling institutional framework and other key elements of mineral policy framework

The key institution in the implementation of the mineral policy framework will, at least initially, be the currently-existing Ministry of Petroleum and Natural Resources (MPNR). The new Ministry of Mineral Development (MMD) will be developed under the overall supervision of the currently-existing MPNR. MPNR will lead and facilitate the implementation of the Mineral Policy Framework, in collaboration with: other government

ministries, departments and agencies; the private sector; academia; National Governmental Organizations[157]. A Mineral Development Advisory Committee (MDAC) should be constituted under the Ministry of Planning and Development to oversee the development of the new Ministry of Mineral Development (MMD) and to implement the actions suggested in the mineral policy development framework. Suggested composition of MDAC is given in Figure 9.2. MMD, after constitution, should then be tasked to build the requisite human resource capacities across the various implementing partners to strengthen the policy implementation. The MDAC will forward its recommendations to the Ministry of Planning and Development which should then draft the required constitutional amendment for the implementation of the mineral development framework. It is suggested that MDAC include the *National University of Science and Technology – University of Witwatersrand (NUST-WITS)* collaboration team[158] in the committee, to offer valuable comments on the structure of different inspectorates and directorates.

[157] Specially those related to social work and environmental protection, like, Safe – Social Alliance for Friendly Environment, Scope – Society for Conservation and Protection of Environment, HEAL, Health, Education and Literacy Trust, etc.

[158] NUST-WITS collaboration team is the capacity building team in mining from NUST University doing research at the University of the Witwatersrand, Johannesburg.

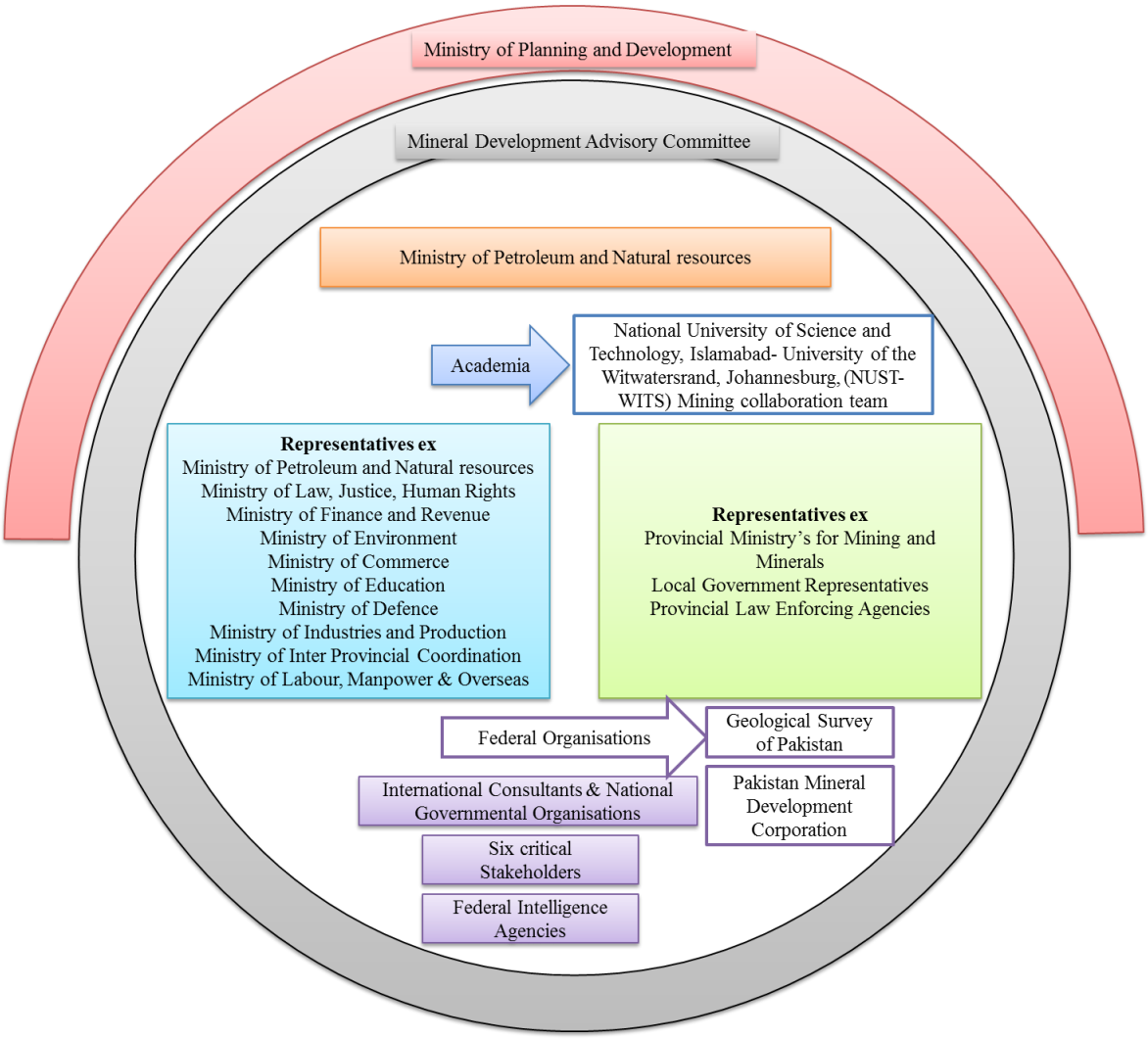


Figure 9.2 Composition of Mineral Development Advisory Committee (MDAC) under the auspices of Ministry of Planning and Development.

The implementation strategy as regards to the individual elements of mineral policy framework and the actions required by various organisations are explained below.

9.4.1 **Implementing element 1: Enabling institutional framework.** The government framework, particularly the regulatory process, must provide an attractive climate for investing and working in Pakistan. It must also be effective in meeting environmental, land-use-planning and resource-management objectives. The various institutional gaps in the mineral industry and actions required by different organisations/ ministries and other institutions are highlighted in Appendix D.

Appendix D provides for the following institutional organs:-

- A separate Ministry for Mineral development;
- Inspectorate of Mines Health and Safety;
- Inspectorate of Land and Mineral Rights;
- Sustainable Development Directorate; and
- Mining Cadastre System and GIS Database.

9.4.2 **Implementing element 2: Political economy.** The political system of Pakistan has thrice been disrupted by a military intervention (1958 by Field Marshal Ayub Khan, 1977 by General Zia-Ul-Haq and 1999 by General Pervez Musharraf). Although, statistically speaking (Figure 7.2), the military governments performed well in the economic sector, this high economic growth never reached the grass root level and the common man remained poor. The civilian governments have, so far, been unable to provide economic stability to the country. The reason for the low economic growth during the period of civilian government is due to the fact that they were never given enough time to implement their economic programme (Table 7.1). A suggested solution for the political stability of Pakistan is to remodel its political system. The democratic parliamentary form of government could be tailored according to Pakistan's specific environment. The suggested adjustment will create a constitutional role for the military. As a result, the Prime Minister (head of the state and government) will no longer enjoy full powers. Furthermore, this will deter sitting-governments from corrupt practices. A high-powered constitutional committee with the representation of important stakeholders should be formulated to suggest constitutional amendments which will ensure stability of the system. A suggested model is the creation of a National Security Council with that has authority to veto any decision which is not in the national interest. Another suggestion is to remodel the entire political system in line with the

best practices of eight developing countries selected in this research, i.e. a democracy with presidential form of government.

Political stability in a country provides favourable environment for economy to grow. This, in turn, attracts foreign investments which translate into industrial growth. Appendix F highlights various other political-economy and infrastructure-development initiatives that need to be undertaken in Pakistan's mineral industry, together with actions required by different organisations/ ministries and other institutions.

9.4.3 **Implementing element 3: Legal Framework - Clearly defined legislation.** The MDAC should constitute a legal committee under the newly established Ministry of Mineral Development. The primary purpose of the committee should be to develop a green paper for the development of a legal framework. This green paper, after deliberate discussions, should be given a constitutional cover and implemented for a fixed period of time (fixed period to be decided in the green paper). After the completion of the fixed period of time, this legal framework should be re-evaluated in such a way as to suggest amendments and final adaptations in the mining industry. This green paper should formulate regulations on aspects such as: a new mineral policy; mining legislation and a detailed legal framework; laws regarding mineral ownership and level of ownership; laws on environmental protection; and specific incentives in the foreign investment law. The suggested new legislation should also cover some legal aspects which are comprehensively covered in Appendix G.

9.4.4 **Implementing element 4: Regulatory framework.** Review of how mineral rights may best-be awarded and types of licenses that will ensure comprehensive and sound development of mineral resources (Appendix G). The MDAC should recommend meaningful review in the legal and regulatory context of mining, which then can be implemented by the

Ministry of Mineral Development. Implementation of regulatory framework is discussed in Appendix G. The main considerations are:-

- Mineral ownership;
- Level of ownership;
- Security of tenure;
- Rights registry; and
- Fee structure and award of concession.

9.4.5 **Implementing element 5: A strong Treasury with an appropriate fiscal regime.** A fiscal policy that is not supported by an appropriate macroeconomic policy is unlikely to succeed. Therefore the fiscal policy adopted by a mining economy should not be seen in isolation from the more general macroeconomic framework. A typical mining operation is generally subject to a wide range of taxes. It is important that a global comparison of a range of fiscal terms and conditions be done to implement taxes which are generally-accepted in international practice. One such comparison was done in 2015 by the International Finance Corporation (IFC). This comparison included taxes such as Royalty Rate, Corporate Tax Rate, Withholding Taxes, Import Duties Exceptions and Value Added Tax Exception.

In addition to broad benefits and growth, Pakistan's government needs to ensure that license fees, tax and royalty revenues derived from exploration, mine development and mining, reflect the value of the resources mined. These must be collected and put to work in support of the sustainable economic development of the nation. Mineral royalties in Pakistan are on the high side and need to be reduced to the level of comfort for the international investors. Other fiscal regime gaps and recommended implementation measures are discussed in Appendix H. These include:-

- Mineral royalties;

- Corporate income tax;
- Withholding Tax;
- Import duties;
- Value added tax; and
- Special mining incentives.

The MDAC should constitute a spate committee on the regulatory framework to prepare draft recommendation on the regulation of the mining industry. The recommendation offered in this research should be given due consideration as they are based on the developing countries similar to Pakistan. This committee should also consider taking in account the example of benefit sharing in Botswana, which is discussed in case study 2.

Case Study 2: Benefit Sharing - Mineral Revenues, Expenditure and Saving Policy in Botswana

Mineral development can fund government programs and it is also a way to transform mineral assets into human, social and physical capital that helps drive sustainable development and long-term poverty reduction. However, it is important to develop a comprehensive plan on how the cost and benefit of the mineral resources are shared across society. It is thus important that the concept of fair sharing[159] of net benefits of mineral resources among various stakeholders must be implemented in its true spirit. It is important for a developing country to work out its strategy for benefit sharing in advance before mineral exploitation. A good starting point is to adapt the principles of benefit-sharing programmes that are followed by the International Finance Corporation, IFC, and World Bank Group. However it is necessary to pre-empt the different expectations and concerns by

[159] The sharing and distribution of a project's cost and benefits can be considered fair if the development aspirations of all stakeholders are adequately met and net benefits are commensurate with stakeholder expectation over time (International Finance Corporation, World Bank Group, 2015).

different stakeholders with regards to benefit sharing. These expectations and concerns are explained in Figure 9.3.

A good and sustainable policy-framework is necessary for mineral benefit sharing of a country, as it impacts profit-sharing (Songi, 2015). Good mineral policy does not necessarily require governments to maximize the net revenue they receive. The benefits of offering standard terms and conditions may outweigh the cost and complexity of trying to implement a more sophisticated tax regime. Developing countries may be best served by setting relatively attractive terms and conditions to attract a steady flow of new investment[160].

Incorporating profit-sharing into mineral policy framework is one thing, and exploiting maximum benefits from it is another thing—which is often most important. If developing countries do not use the profit of mineral resources intelligently, it may become a resource curse. Developing countries should always strike a balance between mineral revenues, expenditure and savings. A classic example of a developing country with excellent mineral beneficiation and mineral revenue saving policy is Botswana.

In many African countries, the exploitation of mineral resources is a major driver of economic growth and development. Botswana, a developing country, received widespread appreciation for its intelligent management of mineral revenues[161]. There are two important aspects of Botswana's mineral beneficiation process: First: its efficient utilization of mineral revenues in education, health care and other forms of development sectors. Second: its assets-development through savings made from mineral revenues.

[160] For example Australia, Canada, Chile and Peru demonstrated that an appropriate, long-term strategy is important for attracting long-term investments in mineral sector.
[161] For most of the past 35 years, mining has been the largest contributor to its GDP (31 %). Source: Econsult Botswana based on information from Statistics Botswana, 2015.

The Spending Policy Framework in Botswana is based on the National Development Plans (NDPs) and the annual budgeting process (The African Natural Resources Center, 2016). NDPs lay out the broad parameters of public-sector development policy and the government's intentions over the plan period. The annual budget includes both the annual recurrent budget provision and the annual component of expenditure required for on-going development projects. The money that has been included in the budget-estimates can only be spent once the parliament approves it. This process of 'check-and-balance' by the parliament instils transparency in national wealth-spending and also ensures correct spending priorities.

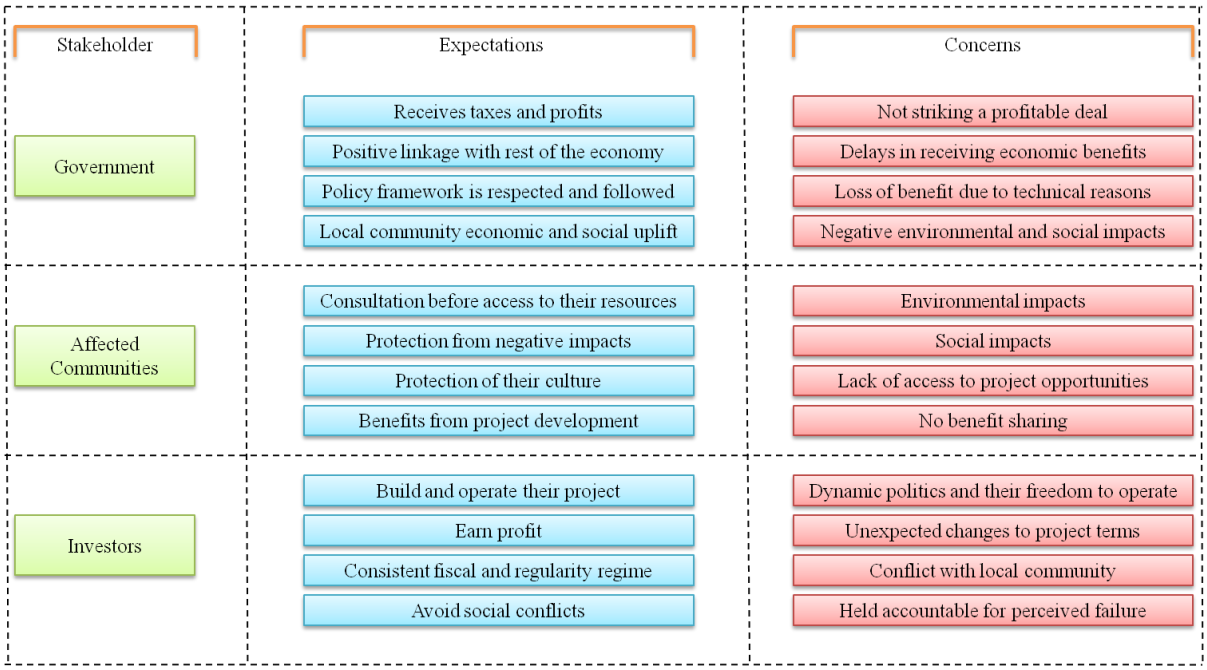
For sustainable development in a mineral economy, the revenues derived from the exploitation of non-renewable resources should be reinvested in other assets that can generate future income when the non-renewable resource is exhausted (Hartwick, 1978). Hartwick and Solow offered a 'rule-of-thumb' for sustainability in mineral economies: "A constant level of consumption can be sustained if the value of investment equals the value of rents on extracted resources at each point in time" (World Bank, 2006).

Botswana is following this approach and the public-finance policy-framework specifies that revenues derived from minerals should be used to finance investment in other assets. The implementation of the asset-preservation principle has historically been monitored through the Sustainable Budget Index (SBI), which is a ratio defined as:-

$$SBI = \frac{\text{Non-investment spending}}{Non-Mineral\ Revenues} \quad \text{.....1}$$

An SBI value of more than 1 means that non-investment spending is being financed from mineral revenues, whereas, a value of less than 1 means that mineral revenue is either being saved or being spent on public investment. A SBI value of less than 1 is termed as sustainable mineral development. For Botswana from 1983 - 2000, the SBI has been always less than 1

and the mineral development has therefore been "sustainable" (Statistics Botswana, 2003). The Government of Botswana developed Government Investment Account (GIA), which was used to save the surplus budget from mineral resources. However, there has lately been a shift in Botswana's thinking of saving the surplus revenue. The thinking is that investment in physical assets and human capital will provide future income, rather than living off income from financial assets[162]. To express this in different words: The basis of this thinking is that it is more profitable to invest almost all mineral revenues received into physical and human capital, rather than into financial assets.



Source: Updated
International Finance Corporation, the World Bank Group, 2015.

Figure 9.3 Expectations and concerns by stakeholders in the process of benefit sharing.

9.4.6 **Implementing element 6: Stakeholder participation.** A continuous programme for monitoring and evaluation, conducted by relevant stakeholders from public and private sectors, should be implemented. Six critical stakeholders were identified by the power and impact matrix, (Figure 6.3, chapter six). These six stakeholders (namely Government, its

[162] A form of revenue that is kept as reserves rather than investing it further.

subsidiaries and implementation bodies, mining industry, local communities and their representatives, law enforcing agencies, religious monarchs, and financial institutions) are included in the MDAC to provide their input in the policy formulation and other implementation measures (Figure 9.2).

9.4.7 **Implementing element 7: Sustainable development.** The management of the natural resource base within ecosystems is the continuous responsibility of any society seeking to become more sustainable (Jaffeer, 2011). To this end, a new Sustainable Development Directorate is suggested to be constituted in the new Ministry of Mineral Development (Figure 8.4). The sustainable development issues and their suggested remedial-implementation plan are explained in Appendix I. The main issues are:-

- Integration of community, regional and national issues;
- Community health;
- Employment opportunities;
- Respect of human rights and cultural heritage;
- Occupational health and safety;
- Security issues;
- Avoiding and minimizing potential adverse effects to biodiversity;
- Managing mining wastes;
- Management of water;
- Integrating informal ASM activities into the legal system;
- Integrating informal ASM activities into the formal economic system; and
- Reducing the social and environmental impacts of ASM.

9.5 **Building block 2: Mineral Database and Mining Cadastre System**

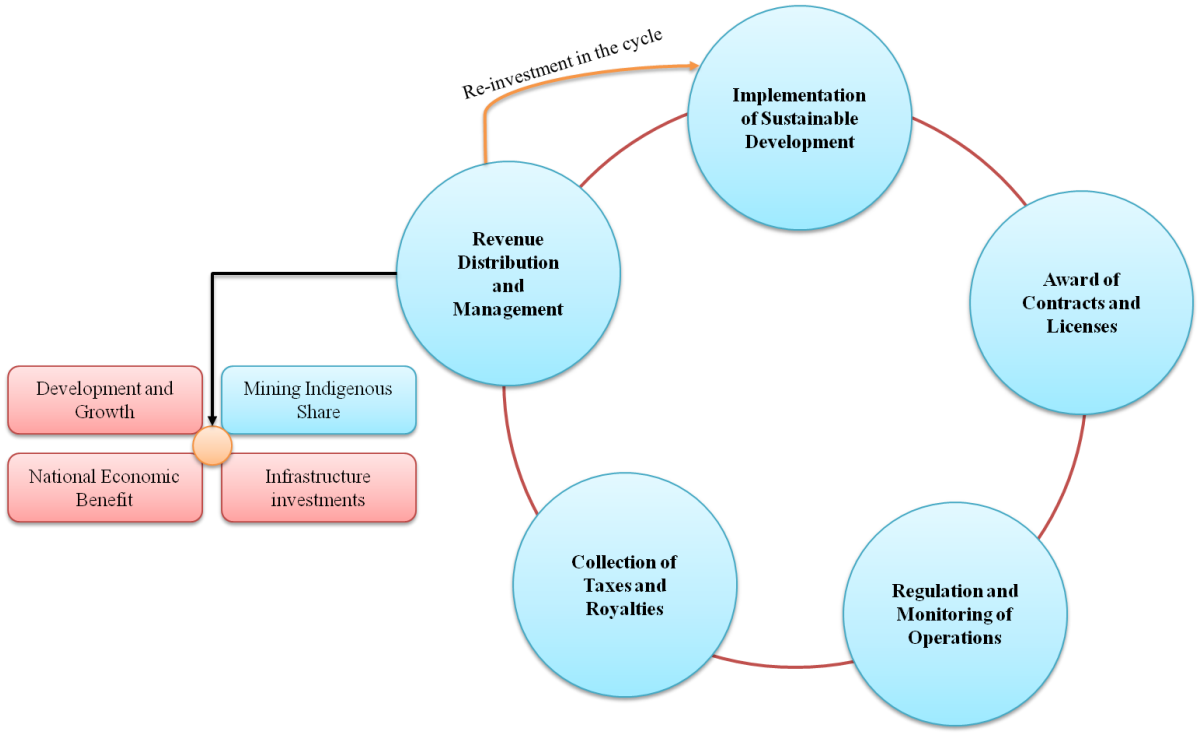
The development of mining in the economy is not only dependent on the availability of resources, but has much more to do with the ways in which these commodity systems are organised (Gu et al., 2011). These organised systems include political, economic and structural processes, such as an efficient legal and regulatory framework, security of tenure, reduced investment risks, transparency and efficient administration, all of which create a favourable climate for investment.

A key international lesson is to revise existing regulatory framework to follow a new policy. Countries like Chile (1983), Peru (1992), Namibia (1992), Brazil (1996), Argentina (1997), Bolivia (1997), Tanzania (1998), Botswana (1999), Madagascar (1999), Algeria (2001), Cameroon (2001) and South Africa (2004) have recently revised their Mining Laws (Ayisi, 2015). These revisions were required to implement principles such as the need to:-

- Provide a modern and open Mining Cadastre and title registry;
- Granting exclusivity of the rights;
- Security of the tenure;
- Free transferability of mining titles;
- Environmental protection; and
- Clear and simple financial requirements.

More recently, the World Bank launched a programme to provide a more integrated and comprehensive approach to natural resource management—one that encompasses the full value-chain of extractive-industries (Figure 9.4) (Munarriz, 2008). The EI value-chain aims to support countries in their efforts to translate mineral-resource-wealth into assets or forms of wealth through the principle of sustainable development. The extractive industry should be run on the principle of sustainable development (Figure 9.4). When the revenue is generated

from mining industry through taxes, part of it should be invested in the economic and infrastructure development of the country, and part of it should be reinvested in the cycle (Figure 9.4). However, weak institutional capacity in awarding and managing of mining licenses can cause many developing countries to fail to capitalize on the opportunity that presents itself. It is therefore imperative for a developing country like Pakistan to develop a strong Mining Cadastre System that can guarantee the much-needed security of tenure to the foreign and local investors.



Source: Updated
World Bank, 2008.

Figure 9.4 Extractive industry (EI) value-chain for natural resource management.

9.5.1 **Meaning and evaluation of term "Cadastre".** A cadastre[163] is a comprehensive register of real properties or land parcels within a country or its administrative subdivisions (Marcin, 2012). The cadastre commonly includes details of ownership, tenure, precise

[163] The word *cadastre* is variously attributed to the late Latin *capitastrum*, a register of the individual (*per capita*) properties established during the Roman Age, and the Greek *kata stikhon*, literally, "down the line," in the sense of the directions and distances marked by monuments along the boundaries of a property.

location, dimensions, and value of individual areas (Williamson, 1983). It dates back to antiquity, when the development of the concept of private ownership led to the need to register and list properties, both to establish taxation references for the state or kingdom and to ensure security of tenure for the titleholder (through publicity and transparency), as well as to avoid potentially duplicate or overlapping ownership-rights (Newby, 2011).

9.5.2 **What is a Mining Cadastre?**

A Mining Cadastre is the principal public instrument that reflects mining titles in a country. Such a cadastre, when developed and backed by capable public-mining-sector-institutions, integrates the regulatory, institutional, and technological aspects of mineral-rights administration, and forms the cornerstone of good mineral-resource management in a country (Shirzad et al., 2014). Governments normally grant mineral exploration and mining rights in particular areas by means of concessions, leases, licenses, and agreements. Efficient and effective granting procedures tend to be based on three basic principles shown in Figure 9.5.

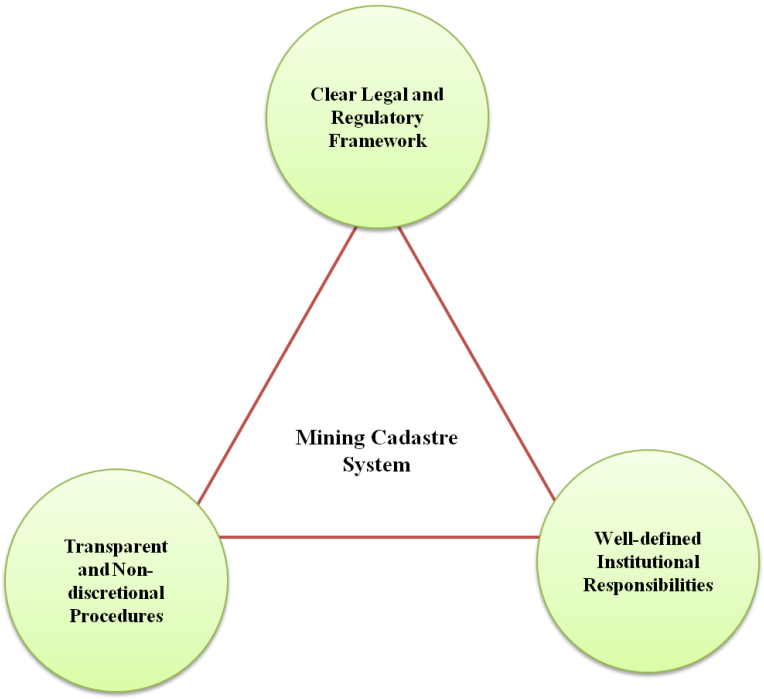


Figure 9.5 Basic principles for an efficient and effective mining-licenses granting system.

A Mining Cadastre should take care of the three basic principles defined in Figure 9.5, and also administer mineral title by following actions according to Figure 9.6.

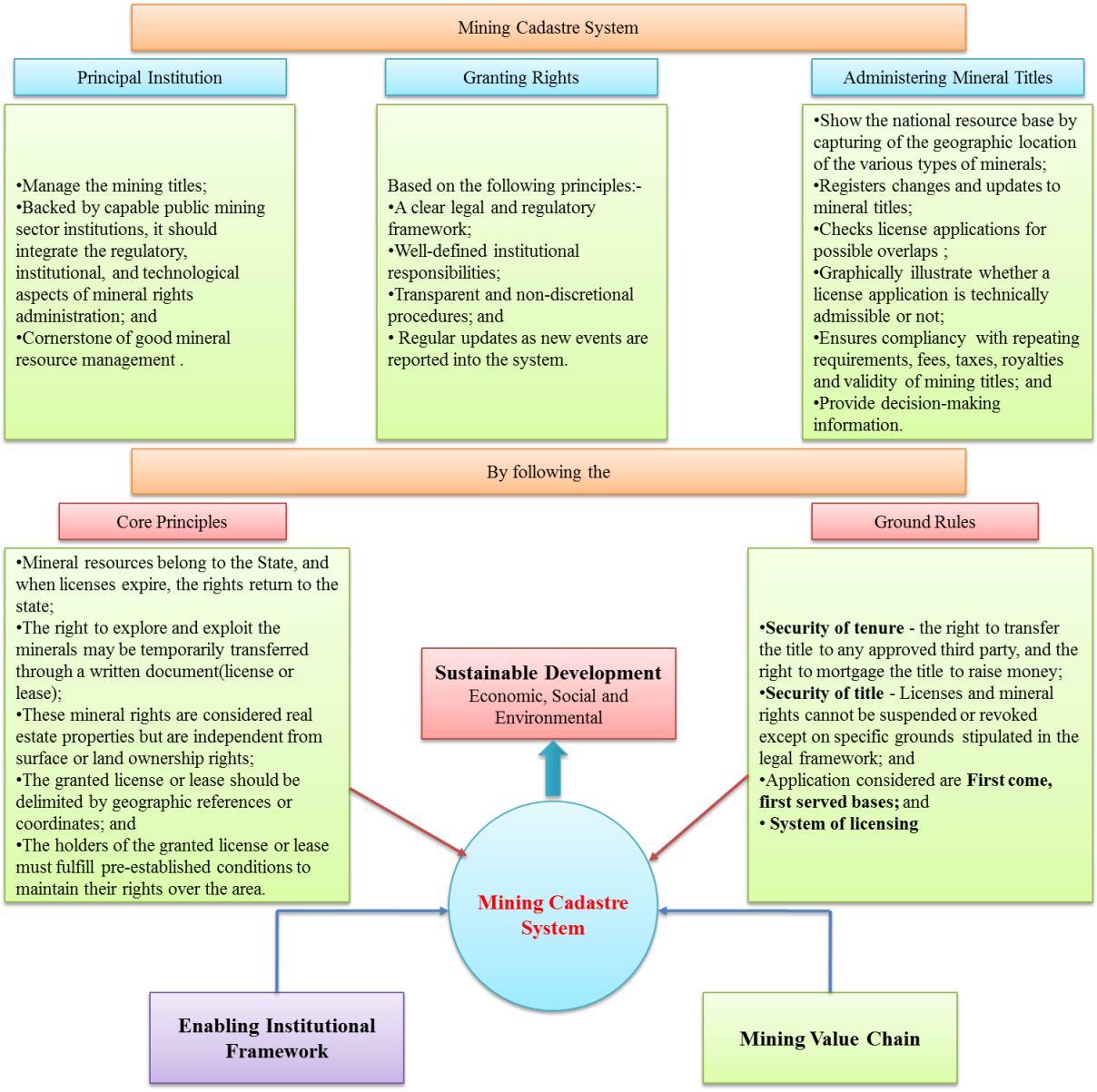


Figure 9.6 Role and principles followed by a progressive Mining Cadastre System.

9.5.3 **The new PakMining Cadastre System – Conceptual design and system architecture.** This section provides a conceptual overview of the design consideration for the newly suggested PakMining Cadastre System. The focus of PakMining Cadastre will be to manage and facilitate the workflows required for the efficient administration of mineral titles. The system is designed to achieve this by scheduling and managing rule-based actions within

an intuitive and easy-to-use application. The software architecture used for the PakMining Cadastre is a two-tier architecture that separates the system into the database tier and the system-design tier. The database tier consists of a set of software components that manage the flow of information to-and-from the database (Figure 9.7). By grouping all of the data-access functionality into a separate tier in this manner, the database is abstracted from the rest of the system. Separating the business-logic from the data and the user-interface allows the system-workflows to be developed around each client's internal workflows in isolation from the actual data or user-interface (Mosca and Groppo, 2015). These workflows are managed by a set of rules residing in the system-design tier. The system-design-architecture is given in Figure 9.7 and the two tiers are explained below:-

- The database is divided into two separate databases, namely a rational database and a geodatabase. The rational database consists of tabulated data regarding licensing, ownership, security of tenure, aerial extents, mineral rights and security aspects. The geodatabase consists of location of mineral resources recorded either on a base map or with the help of a shapefile. Further overlay analysis can also be performed on the location map for quantification of mineral resources.
- The system design consists of graphical user-interface components, and provides tools to capture and display the information handled by the data-access tier in accordance with the workflows and rules defined for the system.

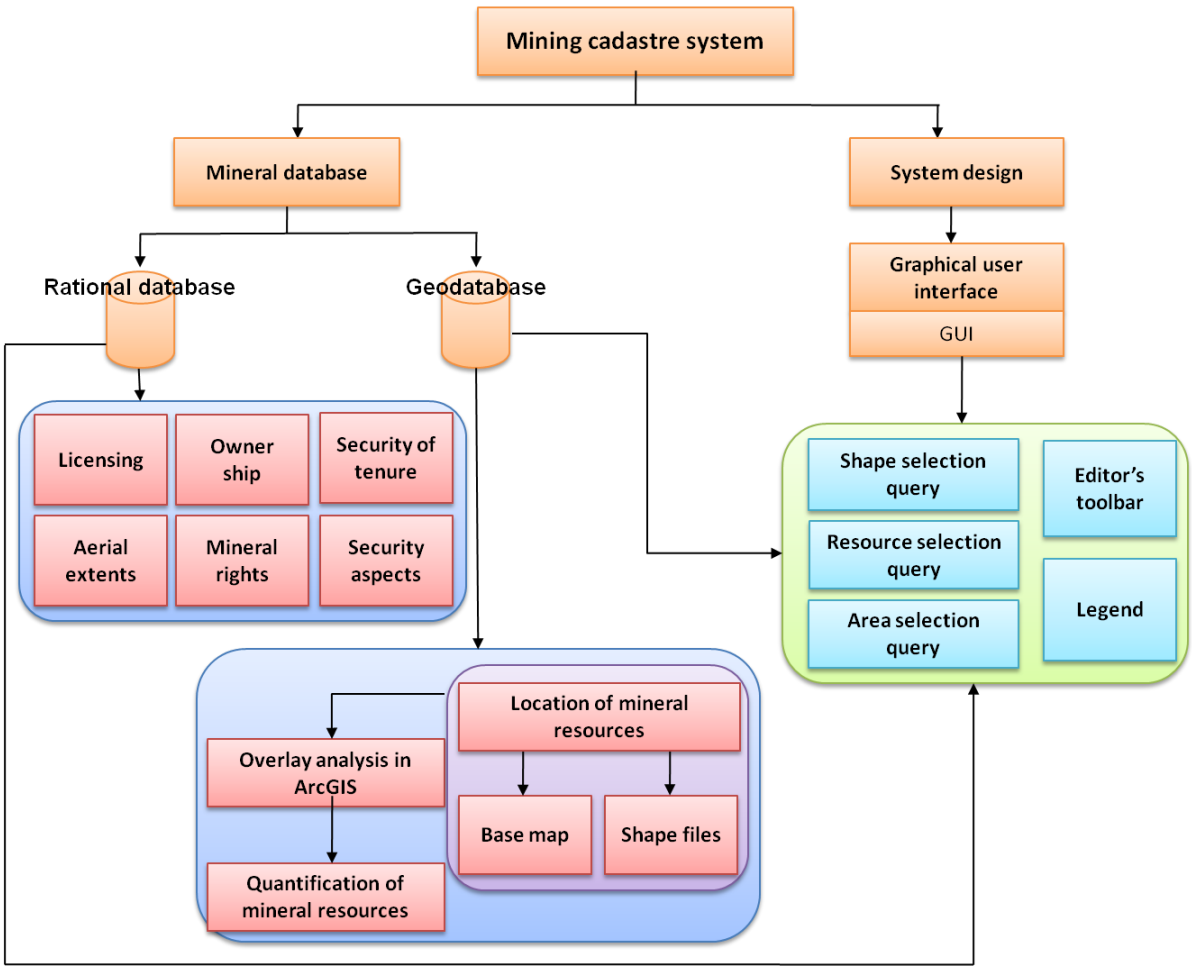


Figure 9.7 System design architecture of PakMining Cadastre System.

9.5.4 **The geometrical architecture of PakMining Cadastre.** In many countries, lack of adequate topographic map coverage and/or a developed, geodetic-point network has led to inaccurate positioning of licenses and frequent conflicts, resulting in the insecure tenure of title holders (Ayisi, 2015). Currently-available technology, including satellite images, GPS and GIS tools, can help compensate for these deficiencies. However, these techniques must be clearly applied to avoid positioning-mistakes.

The official document used for positioning mineral rights in Pakistan is the official cartographic map produced by the Survey of Pakistan. Consequently, the Mining Cadastre

should use the types of coordinates and the parameters (projection system, geoids, and datum) that have been used to produce the national map.

The experience of countries using Mining Cadastre Systems is that there are overlap-problems between different licenses or concessions, which, in turn, cause conflicts (Hilson and Nayee, 2002). There is also a problem of non-utilization of land that might exist between permits, where the area is smaller than the normal licensing unit. To solve these problems, PakMining Cadastre should be introduced with a concept of PakMining Cadastral Unit (PCU) for the management of mineral rights. A PCU is a quadrangular polygon with constant dimensions that is referred to and has a fixed position within a system of coordinates. If implemented, the definition of a PCU shall be included in legal framework, and cadastral procedures will provide technical details about the delimitation of mineral licenses. Every mineral license will always be made up of a certain number of PCUs; thus the dimensions of the sides of any polygon corresponding to a mining license and mining rights will always be in multiples of a single side of the PCU (that is, 500 meters, 1,000 meters, 1,500 meters, 2,000 meters, and so on; see Figure 9.8).

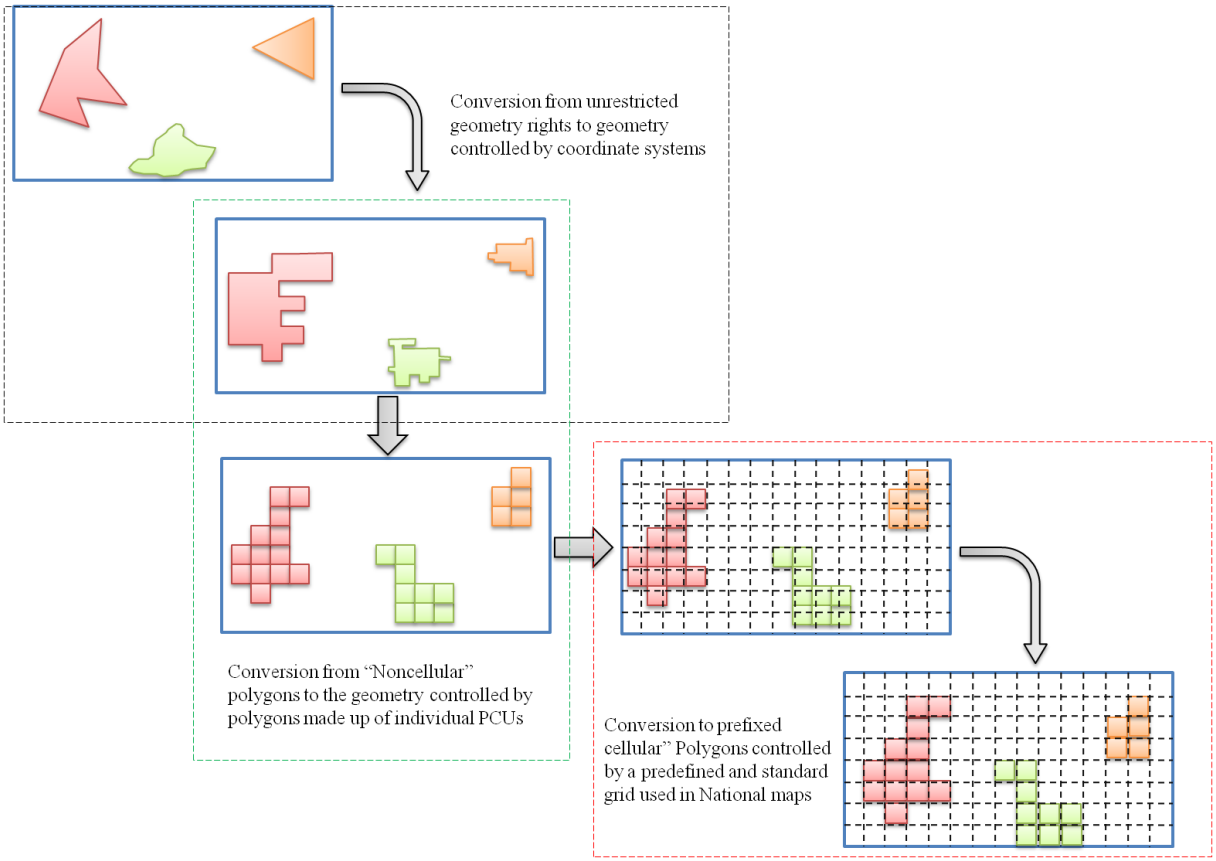


Figure 9.8 Evaluation from unrestricted geometry rights to prefixed cellular" Polygons controlled by a predefined and standard grid used in the national maps.

The polygons must always be located coherently within a pre-defined and standard grid (Figure 9.8). These grids can be mining-specific (exclusively designed for the Mining Cadastre) and drawn over national maps,[164] or they can be generic, using the standard grid that is usually represented in topographic maps[165]. The suggested user-interface for the PakMining Cadastre System is shown in Figure 9.9.

[164] As in the Mining Cadastre System of Bolivia and Peru.
[165] As in the Mining Cadastre System of Madagascar, Mauritania, and Mozambique

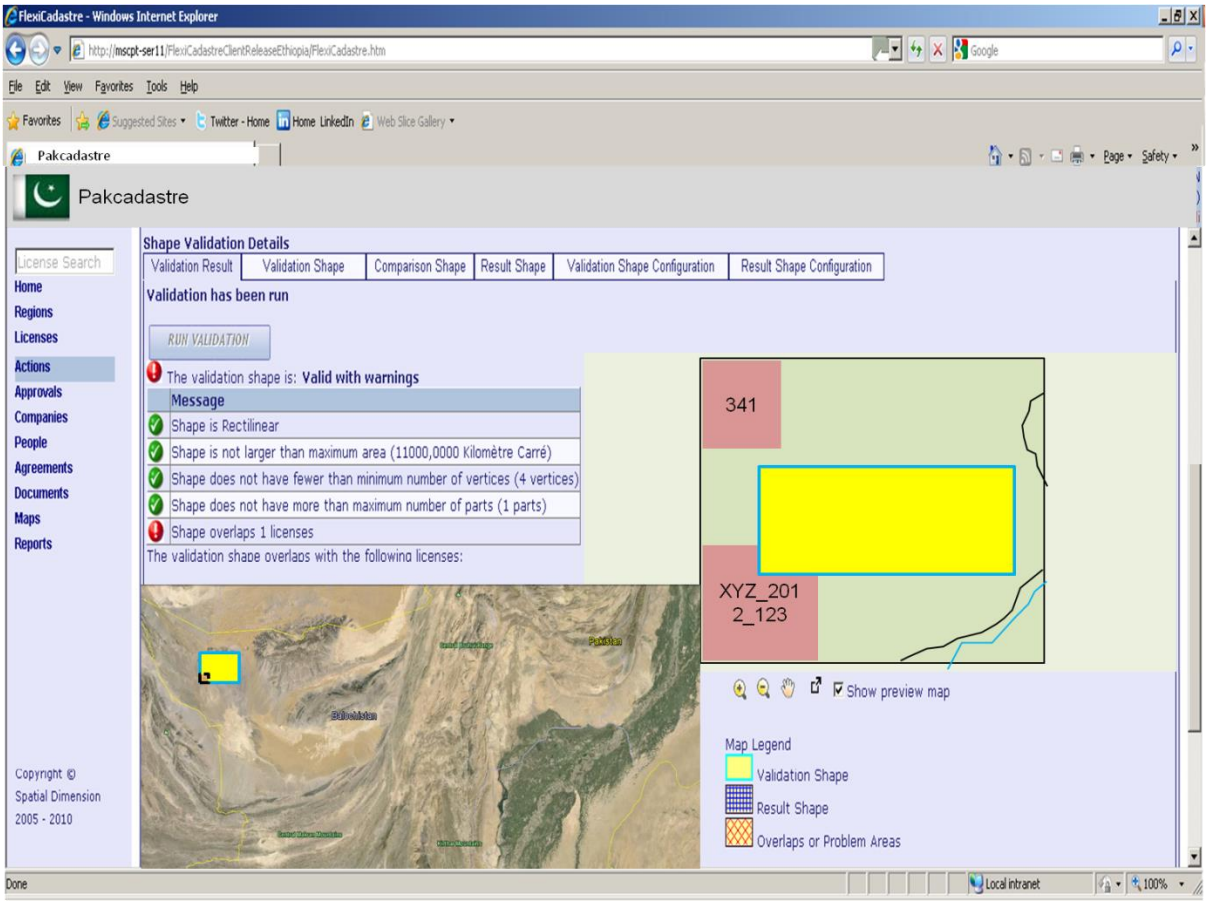


Figure 9.9 User-interface of suggested PakMining Cadastre System.

9.5.5 **Planning and implementation of the new PakMining Cadastre System.** Perhaps the most important factor which needs to be addressed in the planning stage is the security of tenure. It is difficult to attract investments for mineral exploration if there is a risk that the discoverer of ore deposits will not receive exploitation rights and will thus not recover his capital investments (Deininger and Jin, 2006). For this reason, one of the fundamental priorities for investors is to be guaranteed access to exploit any discovered minerals. Pakistan needs to first implement a legal and regulatory framework for mining, where transfer of prospecting- or exploration-rights into mining-licenses is guaranteed, subject to the following. In some cases, this transfer may be conditional to the completion of certain

technical and economic conditions, which should be pre-defined in such a way that anyone fulfilling the eligibility conditions is guaranteed secure-rights[166].

In order to fully-ensure discoverer's rights, certain principles should be established in the legal and regulatory framework of Pakistan. These core principles are important for implementation of a Mining Cadastre System and need to be included in the legal framework. An explanation of the principles is provided in Table 9.1.

[166] By granting a single license for both exploration and exploitation, Peru provides perhaps the greatest security for holders under its single concession system, which avoids the transformation procedure from the exploration license to the mining license and absolutely guarantees the rights of the discoverer. But this automatic transition still does not confer the right to start mining operations without approval of exploitation and related environmental and social plans.

Table 9.1 Planning principles to be included in the legal framework for implementation of a Mining Cadastre System.

S/No	Principle	Responsible organisation	Implementation
1	Ownership of mineral resources	Ministry of Mineral Development	Mineral resources belong to the State and when the validity of the granted license or lease ends, the rights return to the State.
2	Transferability of the right to explore and exploit	Inspectorate of Land and Minerals rights	The right to explore and exploit these mineral resources should be temporarily transferred to an individual or corporate entity through a written document, called a license or lease. Upon issuing rights, the Inspectorate must be notified so that they can monitor compliance.
3	Status of the granted rights	Directorate of Mining Cadastre and GIS database.	The mineral rights granted through such a license or lease should be considered real-estate properties, but should be independent from surface or land ownership rights[167].
4	Delimitation of granted license or lease	Directorate of Mining Cadastre and GIS database and Geological Survey of Pakistan (GSP)	The granted license or lease should be delimited by geographic references or coordinates.
5	Conditional maintenance of the rights	Sustainable Development Directorate	The holders of the granted license or lease must fulfil pre-established conditions to maintain their rights over the area. The license or the mineral right should not be suspended or revoked except on specific grounds, which must be

[167] This is a generally, though not universally, accepted principle. In some places, such as several states in the United States, mineral rights belong to the landowner.

			objective and not discretionary.
6	**Security of tenure:** • *The exclusive rights of titleholders to any mineral discovered inside the license-area.* In some countries, the titleholder's rights are not exclusive, because a license to the same piece of land can be granted several times, although for different minerals. The idea behind this practice is to promote simultaneous exploration for different types of minerals[168]. • *Duration of exploration/mining rights.* It is important to ensure that exploitation/ mining rights are given for a realistic period of time and that they can be renewed.	Directorate of Mining Cadastre and GIS database.	• For exclusivity of rights, only the first holder (from among several overlapped licenses) asking for the transformation of a license from exploration to mining should have the right to be granted a mining license. For these reasons, it is recommended that both exploration and exploitation licenses be exclusive to a single titleholder in any given area. • Mining rights (including exploitation rights) should be granted for periods of up to 25 years and should be renewable until there is either economic or physical depletion.

[168] This presents serious difficulties, because two or more minerals are frequently present in the same deposit or hosted in the same rock, making separate exploitation impossible. The deposits of uranium and gold found together in the Witwatersrand district of South Africa are one of the best-known examples of such a case.

9.5.6 **Institutional framework: Directorate of Mining Cadastre and GIS Database.** Ministry of Mineral Development (MMD) should be constituted to perform functions such as: definition of sector policy, goals, and strategies; establishment of the legal and fiscal framework; administration and monitoring of compliance with all laws, regulations, and procedures; and establishment of a modern Mining Cadastre System and mineral geodatabase (See chapter 8). This will ensure provision of reliable technical information for monitoring sector performance, land use management, and sector promotion, as well as guarantee transparency in sector management.

The organisation of the new Ministry must have an Inspectorate of Land and Minerals Rights, responsible for key functions related to security of tenure, Mining Cadastre System and mineral geodatabase. The organizational structure of the inspectorate is explained below (Figure 9.10):-

- *The Inspectorate of Land and Minerals Rights* monitors mining operations and ensures compliance with laws, regulations, and procedures.
- *The Geological Survey of Pakistan* (GSP) develops and maintains reliable national earth-science infrastructure, including geological maps and related databases.
- *The Directorate of Mining Cadastre and GIS Database*, as a public-sector entity, receive applications and issues and administer mineral rights.

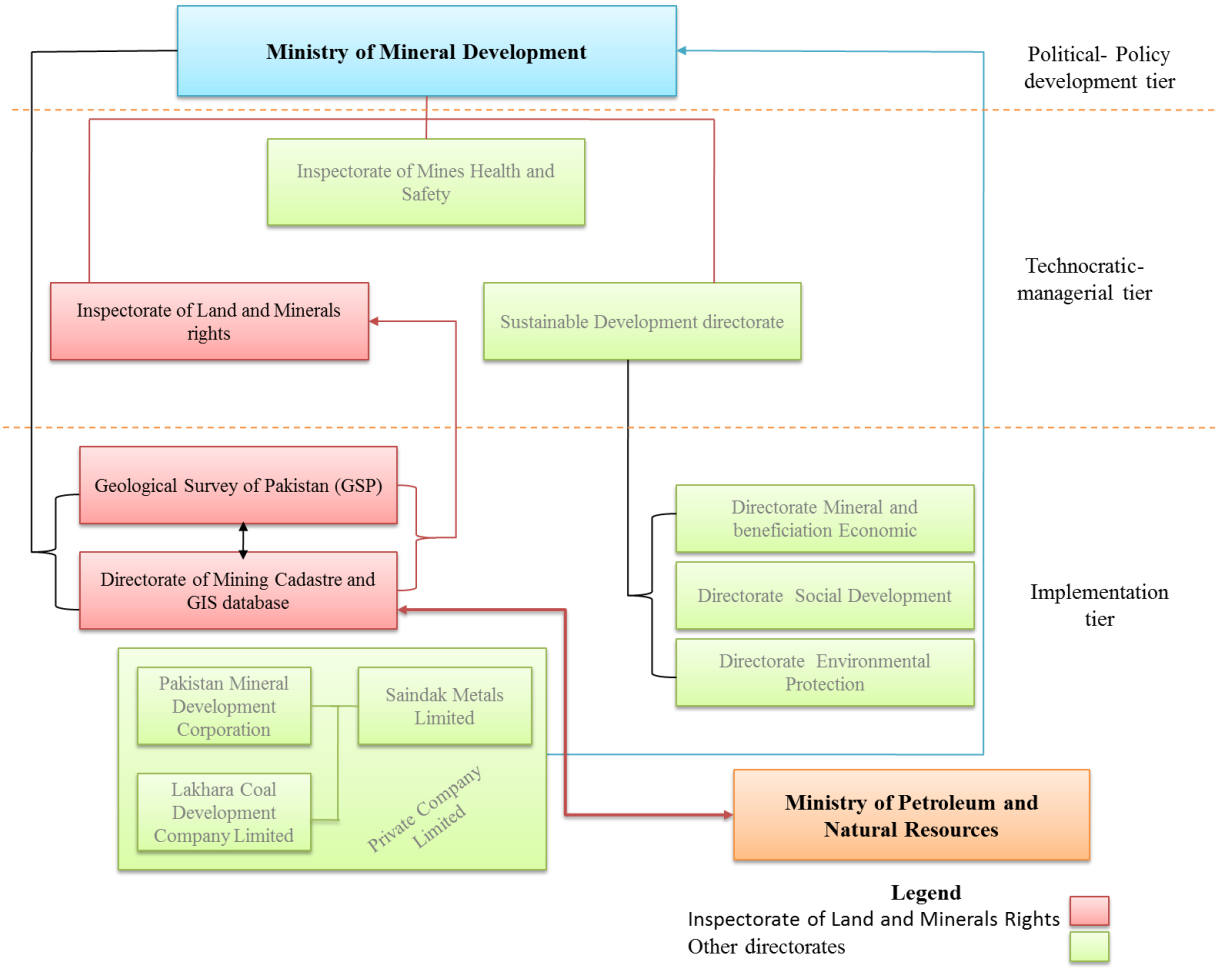


Figure 9.10 Organisation of Inspectorate of Land and Minerals Rights under the new Ministry of Mineral Development (blocks relevant to the Inspectorate are highlighted in colours other than green).

9.5.7 **Mandate and functions of the Directorate of Mining Cadastre and GIS Database.**

The Directorate of Mining Cadastre and GIS Database should be responsible for:-

- Acting as a liaison between the State (MMD) and the holders or applicants on any question related to mineral rights; this interaction includes written notifications, which should be centralized in the Mining Cadastre System.
- Receiving applications for new licenses, as well as requests for renewal, extension, reduction, transfer, and abandonment.

- Producing updated cadastral maps on which existing minerals rights, pending applications, and areas restricted for mining activities are correctly plotted and Georeferenced according to the map produced by Survey of Pakistan.
- Verifying that licenses do not overlap (especially in the case of new applications), checking the eligibility of applicants, and making decisions to grant or refuse applications.
- Keeping cadastral maps and registries open and accessible for public consultation.
- Initiating procedures for the revocation, cancellation, or expiration of licenses in accordance with the provisions of mining laws and regulations.
- Acting as a technical referee in the event of dissension between holders about the location of areas granted, and resolving any disputes resulting from the definition and demarcation of markers and boundary lines of areas subject to mineral licenses.
- Collecting administrative fees required for the submission of mineral rights applications, as well as annual rental fees from valid licenses.

The responsibilities and functions listed above involve all types of mineral rights, from reconnaissance and exploration to mining. All mining activities (including small-scale, artisanal mining, gemstone mining, and building material quarries) should be included in the general-mining regime and subject to the cadastral regime. It is recommended that management of all mining activity be unified and centralized under the responsibility of Inspectorate of Land and Minerals Rights. This organization should be in charge of applying a unified set of legislations, regulations, and rules related to all mining activities. The more accessible the information is to the public, the less the possibility of corruption-channels remaining open.

9.5.8 **Inter-institutional position: Directorate of Mining Cadastre and GIS Database.** Another important consideration is the relationship between mineral rights and hydrocarbons.

If, per this thesis's proposal, Pakistan separates mining industry from the *Ministry of Petroleum and Natural Resources* and creates a new *Ministry for Mineral Development*, hydrocarbons (oil and gas) will be regulated under a separate regime, with different rules for granting rights. The two regimes would share common infrastructure such as topographic and geodetic information, global positioning system (GPS) field equipment, databases, and Geographic Information System (GIS) tools. Yet, because the two would be working as separate units with different rules, this could result in two Cadastre System directorates, one hosting hydrocarbons and the hosting mining, resulting in obvious confusion regarding tenure, rights etc.. Such confusion can be avoided by creating strong inter-institutional linkages and coordination, and by centralizing the location of the cadastral system, with all mining activity being coordinated at a single place under overall governmental supervision. The linkage and inter-institutional position of the Directorate of Mining Cadastre System and GIS Database is explained in Figure 9.11.

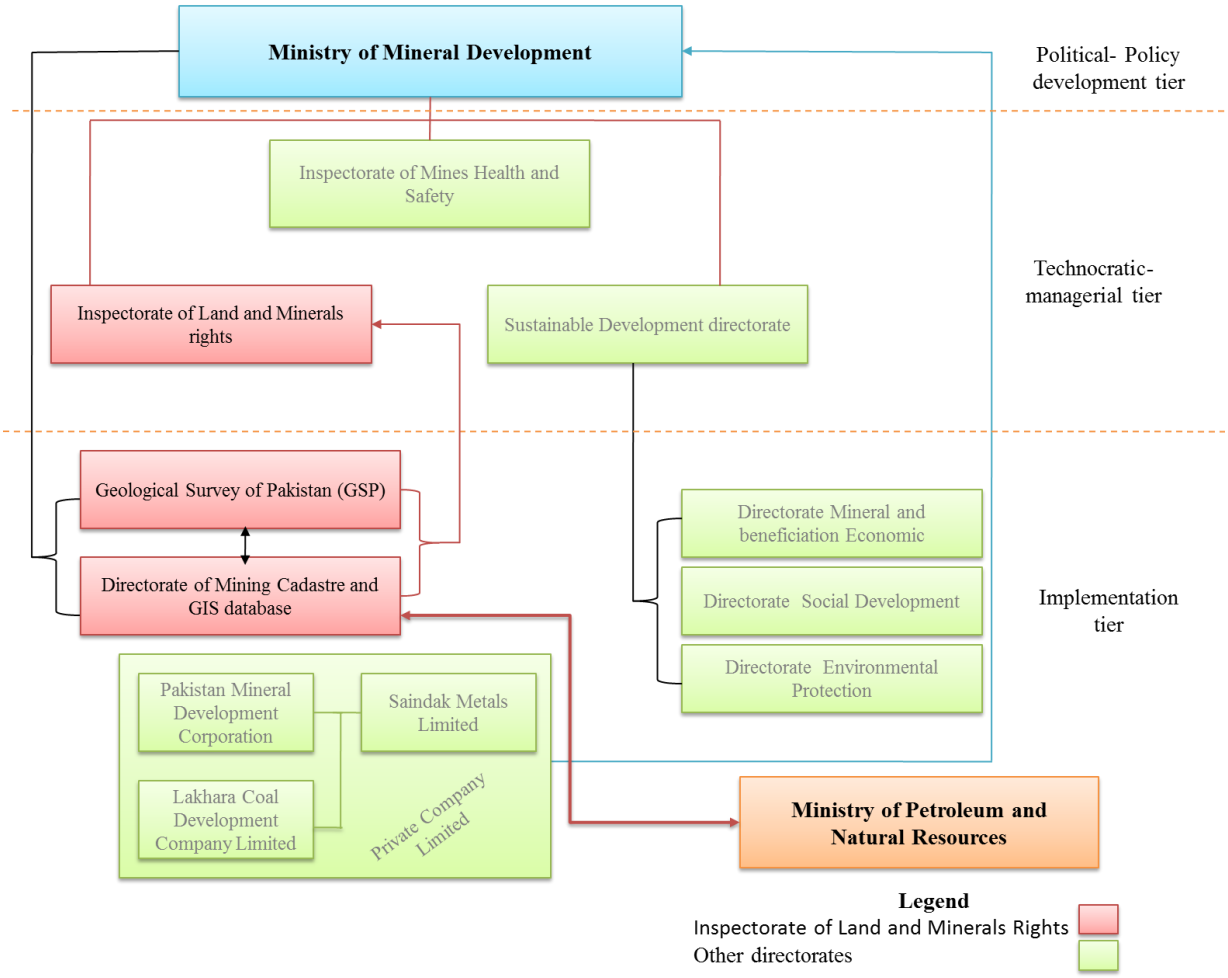


Figure 9.11 Inter-institutional coordination between the Directorate of Mining Cadastre System and GIS Database and Ministry of Petroleum and Natural Resources (blocks relevant to the Inspectorate are highlighted in colours other than green).

There are three prerequisites that must be considered before adapting such a centralized Mining Cadastre and GIS system:-

- In order to guarantee coordination between the cadastral activity and the other agencies focused on geological infrastructure, the Mining Cadastre System should be linked to both the ministry that is responsible for the mining sector and the ministry that is responsible for the Petroleum sector (Figure 9.11).

- In order to avoid technical interference and unnecessary operational interactions, the Mining Cadastre System should be hierarchically independent from both the ministries regardless of the need for coordination, thereby maintaining its operational autonomy.
- In addition, the Mining Cadastre System should be completely independent from any State entity authorized to hold, explore, develop, operate, or dispose of mining properties, in order to avoid any conflict of interest and to guarantee objectivity, transparency, equity, and fairness in decisions affecting the granting of mineral rights.

9.5.9 **Implementation Principles for an Effective PakMining Cadastre and Mineral Rights Management System.** The Mining Cadastre System should protect and guarantee the rights of both the State and the titleholders. To achieve this balance, it is essential for the Mining Cadastre System to make transparent, objective, and nondiscretionary decisions. The institutional characteristics that are required for these principles to be implemented are explained in Figure 9.12.

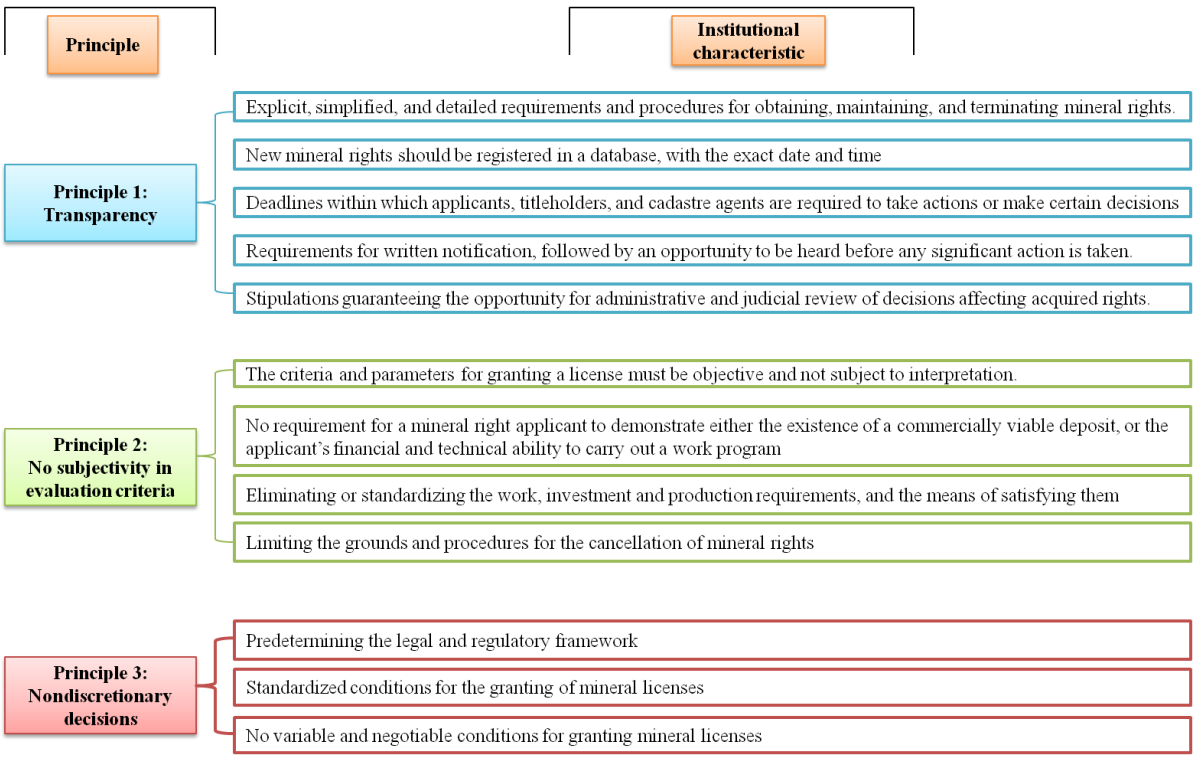


Figure 9.12 Implementation principles for effective and transparent Mining Cadastre System.

9.6 **Building Block 3: Monitoring and Evaluation**

This section outlines the processes, tools and guidance related to the monitoring and evaluation of framework, covering everything that happens after the implementation phase is launched. Monitoring is the management of processes for improving the implementation, both to improve organizational delivery and control of risk (Job, 2007). Monitoring is the continuous collection and analysis of information used by management and partners to assess performance (progress on implementation of activities, delivery of outputs, achievement of results and impacts, and use of resources). Monitoring is an essential pre-requisite for results-based management, evaluation and learning (Iyalomhe, 2015).

Although there should be regular reporting into the new framework, the first major evaluation should take place after three years to ascertain the extent to which targets, objectives and deliverables are being achieved. Thereafter, it should be annually updated as and when it comes in. Sustainable development criteria – economy, environment and social priorities - should be used to guide strategy in a balanced way for the longer-term. The success of the new policy framework should be measured after 10 years, and where necessary, adjustments should be made.

Pakistan's government should monitor global and national developments, especially as they impact its trading partners and competitors, to ensure continued viability of Pakistan's minerals sector, and protection and expansion of its markets. The Ministry of Mineral Development should be accountable for monitoring and evaluating the implementation of new policy framework. A continuous programme for monitoring and evaluation, conducted by relevant stakeholders from public and private sectors, should also be implemented.

The Ministry of Mineral Development should conduct broad stakeholder consultations periodically to review and assess the effectiveness of the implementation. The results of the

assessment, including recommendations, should be published in an annual report and submitted to the Federal Cabinet. An overview of the monitoring process is given in Figure 9.13

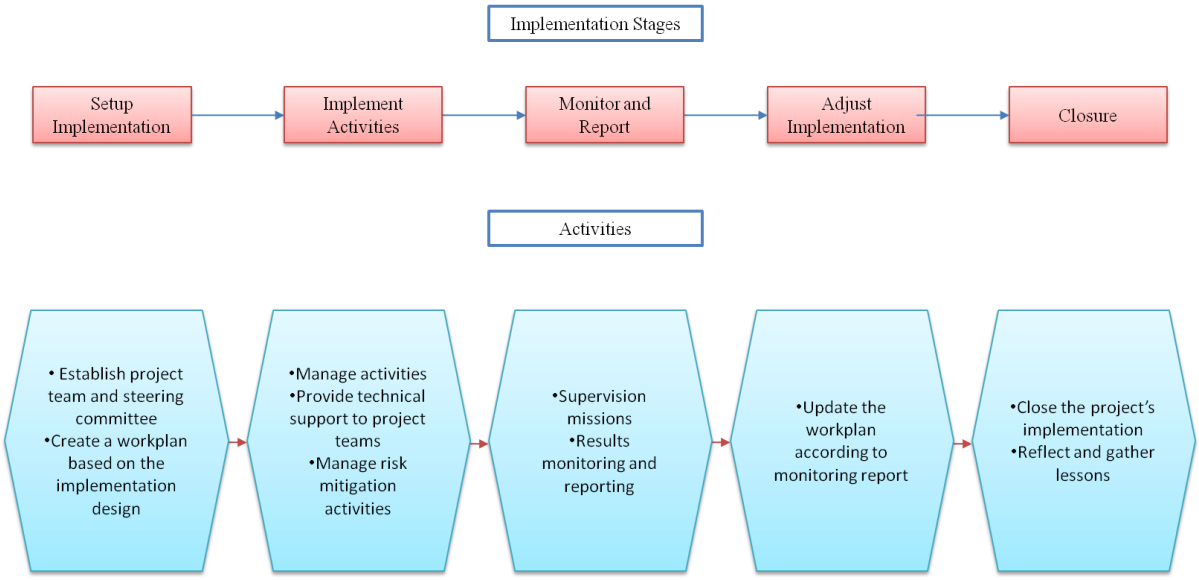


Figure 9.13 Implementation and Monitoring workflow.

9.7 **Conclusion**

Chapter nine discussed the implementation considerations for the newly developed policy framework. It also presented the design schema for a Mining Cadastre System for secure mineral rights system to attract local and foreign investments. A Mineral Development Advisory Committee (MDAC) was suggested to oversee the implementation of institutional reforms, constitution of Mining Cadastre directorate, and implementation of other policy development frameworks. A comprehensive account of implementation and monitoring strategy was devised to be initially followed by the advisory committee, and later by the Ministry of Mineral Development.

Chapter ten will draw conclusions from the study. Based on these conclusions, certain recommendations will be made to implement the newly developed policy framework and Mining Cadastre System.

CHAPTER TEN

CONCLUSION AND RECOMMENDATIONS

10.1 Introduction

Mineral resources can be exploited by the developing countries when wisely utilized. Many mineral-endowed countries depend on their mineral resources, earning a considerable portion of their foreign exchange from mineral extraction. Pakistan is gifted with significant mineral resources which provide the potential to lift its economy and bring prosperity to the country.

The contribution of an economic sector to the GDP of a country is a direct indicator of the success of that sector. Unfortunately, in spite of the fact that Pakistan has large mineral deposits and has formulated two mineral policies, the sector's contribution to national GDP remains small (less than one percent). This contribution is suboptimal, given the presence of significantly large concentrations of mineral deposits and industrial minerals. There is a need to increase this percentage significantly (3 – 5 %) by increasing the mining contribution to Pakistan's economic growth. This is attainable, provided that proper direction is set.

The above discussion highlights need for Pakistan to formulate a new mineral policy framework that will deliver economic benefits from mining. Such policy would need to be based on leading practices in order to attract the much needed foreign investment. Following the review of literature (Chapter one), four research objectives for this thesis were identified:-

- The first objective was to investigate the process of mineral policy development of Pakistan as compared to leading developing minerals-based economies, and to formulate a strategic-fit mineral policy framework for Pakistan, keeping in view its fragile political, socio-economic and security environment;

- The second objective was to examine which factors determine good security of tenure.
- The third objective was to examine the role of various stakeholders influencing decision-making and explain how communities can benefit from mineral development; and
- Finally, to formulate an implementation-plan for mineral policy, highlighting the role of the mining cadastre system for security of tenure.

10.2 Research Findings

The following research findings are designed to assist Pakistan in developing a strategic-fit mineral policy framework for its economic growth and development:-

10.2.1 **Mineral Policy Framework for Pakistan.** Pakistan is a developing country and needs to offer a suitable environment for investment, so that investors can trust its policies on mining investment. For an investment-friendly mining sector, Pakistan's policy must not only be in line with the world's leading mineral economies, but must also align with developing-country objectives. The gaps between Pakistan and the world's leading mineral policies needed to be addressed. In order to select countries for gap analysis with Pakistan, certain criteria were formulated. The selection of criteria was an important element of the research, as it directly affected the formulation of a new mineral policy for Pakistan. The conceptual framework followed for the research is explained in Figure 10.1.

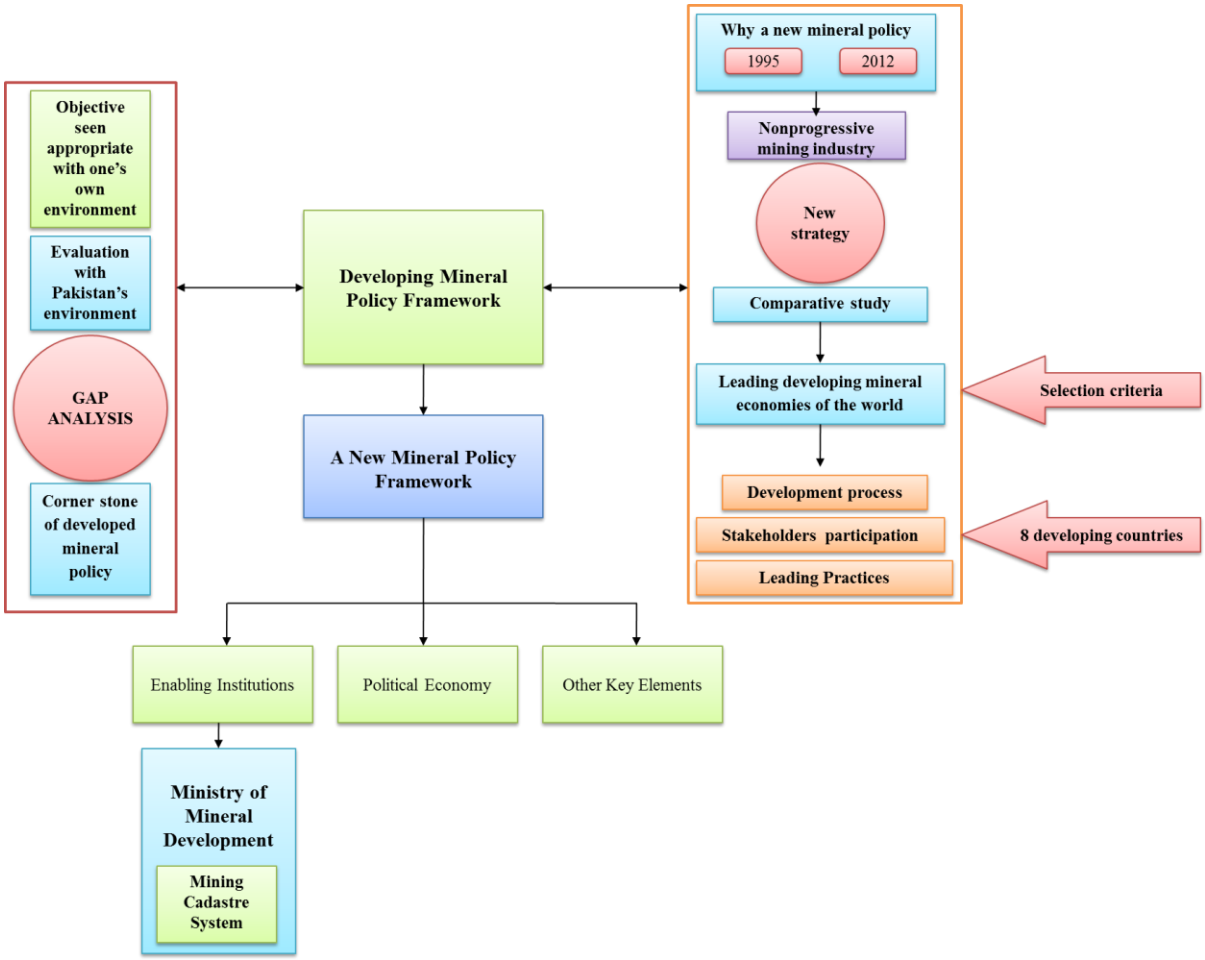


Figure 10.1 Conceptual framework followed for undertaking the research.

Two basic principles were kept in mind during the process of choice of countries: first, a developing country like Pakistan was selected; and second, at least two countries were having Islamic background. Islamic background means Muslim countries with Sharia law effecting its economic environment. Unlike secular legal traditions, Islamic law is based on religious principles that can hinder enforcement of a contract.

Five criteria were used to select developing countries for this purpose (Figure 10.2):-

- The *first* criterion was the Moody's rating (Evaluation of country economic and political risk for international investors). Political instability is negative for foreign

investment as it results in regulatory changes and potential breach of contract by new governments;

- The *second* criterion was the mining countries attractiveness ranking by Behre Dolbear. The ranking is an annual advice to the mining corporations on political risk of a particular country;

- The *third* criterion was considering trends in global exploration spending patterns. This criterion is a direct indicator of countries' mineral wealth and good mineral policy framework. It also reflects the attractiveness of the leading mining companies for exploration;

- The *fourth* criterion was the emerging countries' rating by the Alliant insurance brokers and risk advisors. These are emerging countries' ratings in mining industry, based on political and economic risk; and

- The *fifth* criterion was the gold, copper and coal production trends. This criterion was included because Pakistan has the world's sixth-largest undeveloped coal reserves.

A final criterion used to select the eight countries for the analysis was Fraser Institute Survey of mining companies.

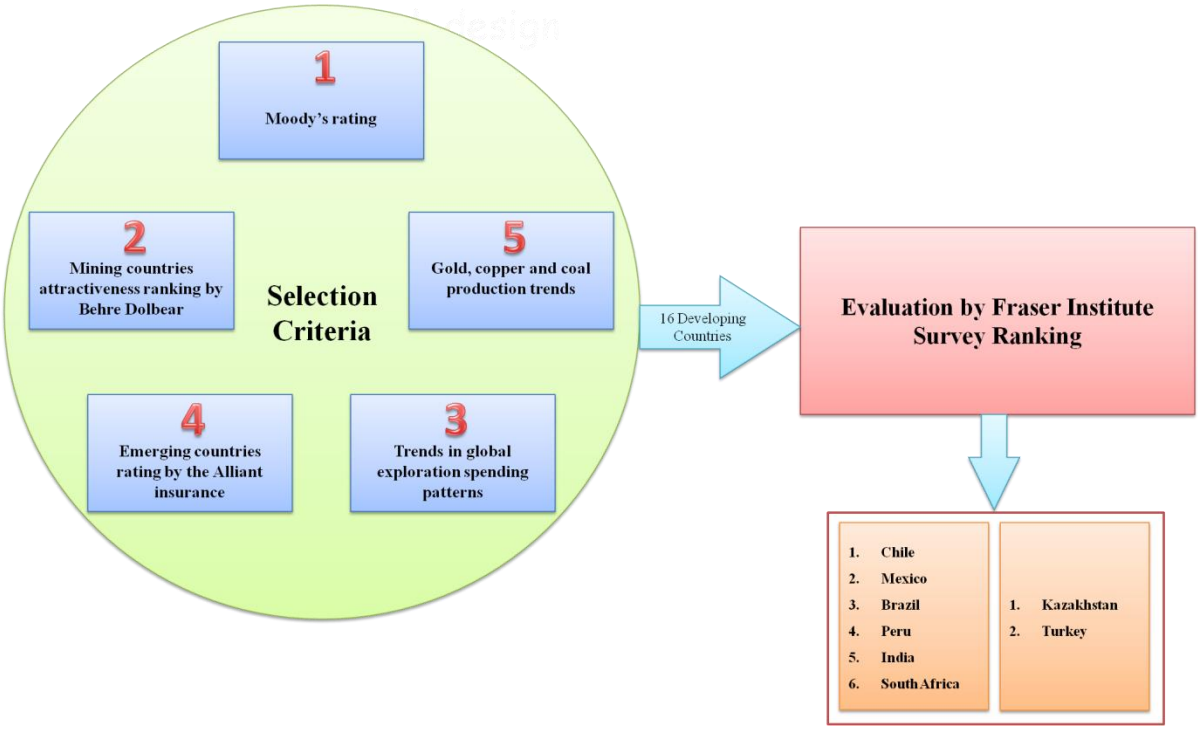


Figure 10.2 Criteria for selection of developing countries and the countries selected.

The six developing non-Islamic countries selected were (Figure 10.2):-

- Chile
- Mexico
- Brazil
- Peru
- India
- South Africa

And Islamic developing countries were (Figure 10.2):-

- Kazakhstan
- Turkey

10.2.2 **Comparative analysis of Pakistan's Mineral Policy Framework with selected developing countries.** Following the selection of the countries and comparable analysis, a comprehensive gap analysis was carried out between Pakistan's current mineral development

framework and the selected countries'. This review highlighted following key lessons for mineral sector of Pakistan during the course of the research:-

- An enabling institutional framework for creating an environment for conducting business through simplified and transparent access to mineral concessions, which, in turn, enables catering to the needs of a large range of mining stakeholders;
- Enabling fiscal and regulatory frameworks for mining to enhance the economic attractiveness of the sector;
- Focusing on environmental concerns, social responsibility and development of infrastructural facilities in mineral bearing areas; and
- Developing a comprehensive GIS (with Mining Cadastre) for mining.

Other important findings were as follows:-

- Parliamentary democratic form of system was the most commonly encountered in the eight countries, with a five years average as the frequency of elections;
- All eight countries have a free market economy;
- The range for the World infrastructure ranking was 15.1 – 66.5 with an average of 45.7;
- The range for the annual population growth was -0.4 - 1.3 %, whereas the average was 0.9 %;
- The range for the annual GDP growth was 1 - 6 %, whereas the average was 3.8 %.
- The range for the tax revenue/GDP was 10 – 34 %, whereas the average was 23.3 %;
- The range for the unemployment was 5.2 – 24.9 %, whereas the average was 9.5 %; and
- The range for the population below international poverty line was 8 – 51 %, whereas the average was 28 %.

Positive steps that selected developing countries initiated to progress their economies were:-

- Continuity in the political system of the country, which ensured stability in royalty and taxation system as a confidence-building measure to the investors;
- The governments (especially the Latin American States) turned into an investment promoter and regulator as against being an active partner;
- Specific mining laws, geared towards attracting mineral investment, which guaranteed foreign direct investment in mining sector;
- A user-friendly regulatory body for mining operations, which opened their economic sector to foreign investments;
- Limited restriction on repatriation of profits and capital;
- Policy of non-discriminatory fiscal system among local and foreign companies; and
- Central control of all minerals (State property until it is mined).

10.2.3 **Role of stakeholders in the Policy Development Process.** Stakeholders play an important role in the policy making process. They provide ideas and define the stakes involved through interactive dialogue. Policy-making should ideally involve as many people and organizations as possible. Involvement of all stakeholders during the process of policy development leads to better and workable outcomes. For a better participatory process, Pakistan first needs to identify the stakeholders and their roles.

For identification of stakeholders, an impact analysis table was drawn (Table 6.2). In the impact analysis, all potential stakeholders were listed with their impact on different spheres. For example, the local community, which is an internal stakeholder having high influence on the policy making process, is highly important for consultation as it has economic, social, environmental and law-and-order implications on the area. Therefore, local community was identified as a critical stakeholder in the policy formulation process. Similarly, those

stakeholders who have high influence on the policy-making process and are also highly important for consultation were considered to be critical stakeholders. It is important to note here that this stakeholder identification was done specifically for Pakistan, whilst taking into consideration the country's current economic, social and security environment. The various critical stakeholders identified in the research are (Figure 10.3):-

- Government, its subsidiaries, and implementation bodies;
- Mining industry;
- Local communities and their representatives;
- Law enforcing agencies (LEA's);
- Religious Monarchs; and
- Financial institutions.

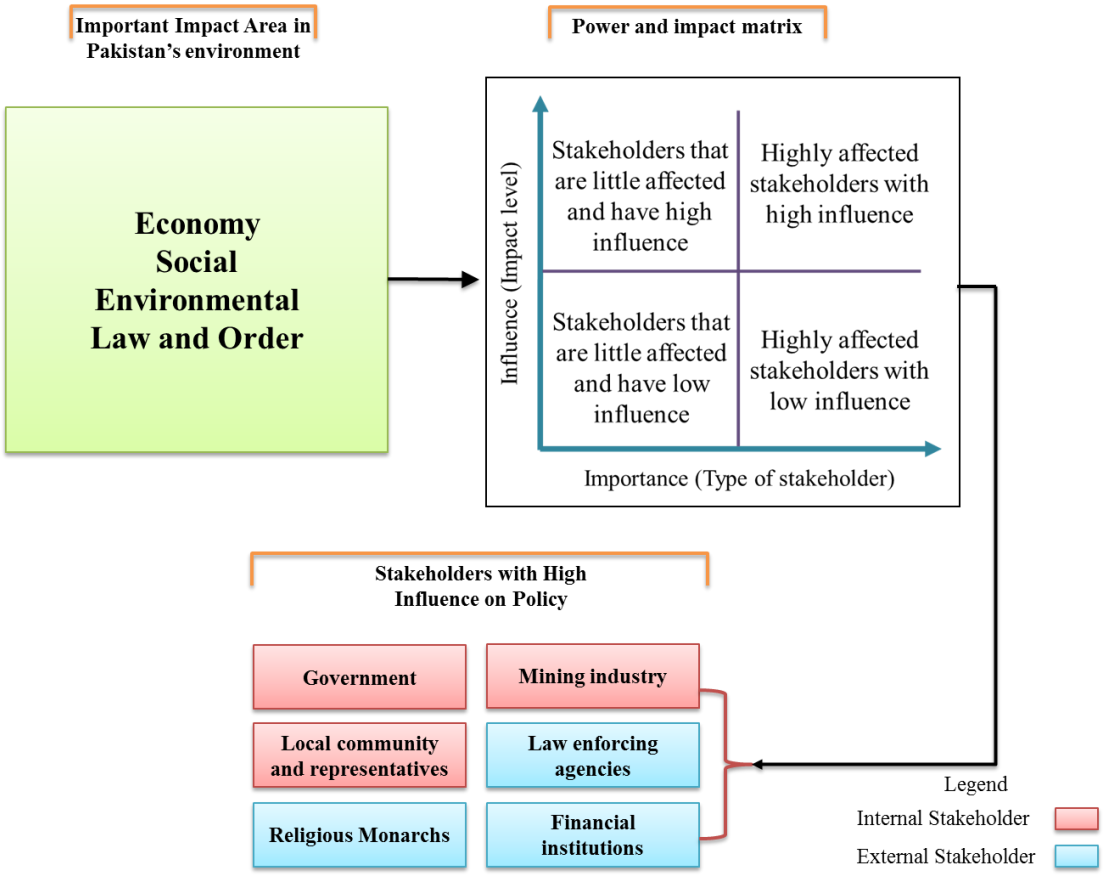


Figure 10.3 Critical stakeholders identified in Policy Development Process for Pakistan.

10.2.4 **Role of Mining Cadastre System for a secure mineral rights system.** The contribution of mining in the Pakistan's economy will largely dependent on the ways in which mining industry is organised. An organised system should include an efficient legal and regulatory framework, security of tenure, mitigation of investment risks, transparency, and efficient administration, all of which create a favourable climate for investment. Weak institutional capacity in awarding and managing of mining licenses can cause Pakistan to fail to capitalize on the opportunity that presents itself. It is therefore imperative for Pakistan to develop a strong Mining Cadastre System that can guarantee the much-needed security of tenure to the foreign and local investors.

10.2.5 **Implementation plan.** It was suggested that the Implementation Plan be implemented in three stages, which were called 'building blocks for the implementation plan'. The sequence of implementation is important, as block 2 (i.e. *Mineral database and Mining Cadastre System*), cannot be implemented unless block 1 (i.e. *Developing an enabling institutional framework and other key elements of mineral policy framework*) has been implemented.

It was suggested that the complete implementation plan be overseen by a committee, namely Mineral Development Advisory Committee (MDAC) under the auspices of Ministry of Planning and Development (Composition of the committee in Figure 9.2). The most critical implementation-point before going ahead with the complete plan is the development of a new Ministry, namely the Ministry of Mineral Development (MMD). The composition of the MMD is explained in Section 8.3.1.

10.3 Research Contribution

The following are research contributions from this research that should be followed to develop a new mineral policy framework for Pakistan:-

10.3.1 **Mineral Policy Development Framework for Pakistan.** A detailed process was discussed and formulated in the course of research. It was recommended that the process involve all relevant stakeholders and incorporate internationally-accepted practices for policy-formulation process. Figure 10.4 explains the process of formulation of a strategic-fit mineral policy framework for Pakistan.

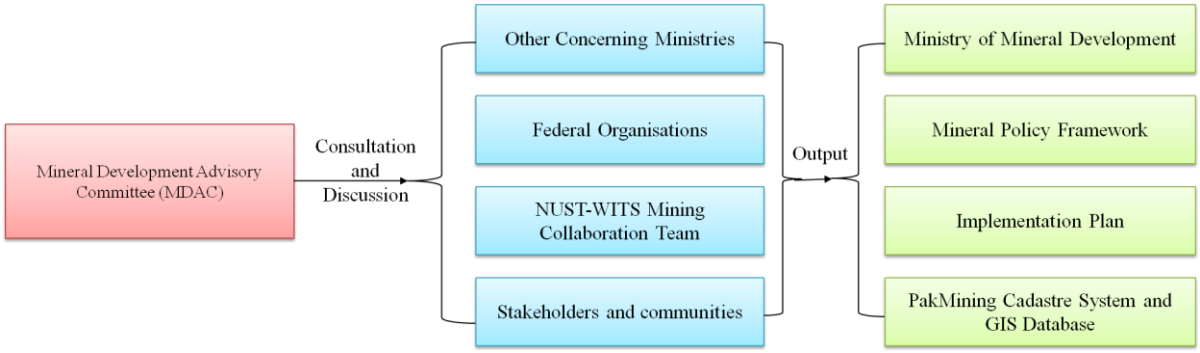


Figure 10.4 Process of formulation of a strategic fit mineral policy framework for Pakistan.

The internationally accepted best practices were derived through a process of selection based on criteria developed in the course of the research. The process development is explained in Figure 10.5.

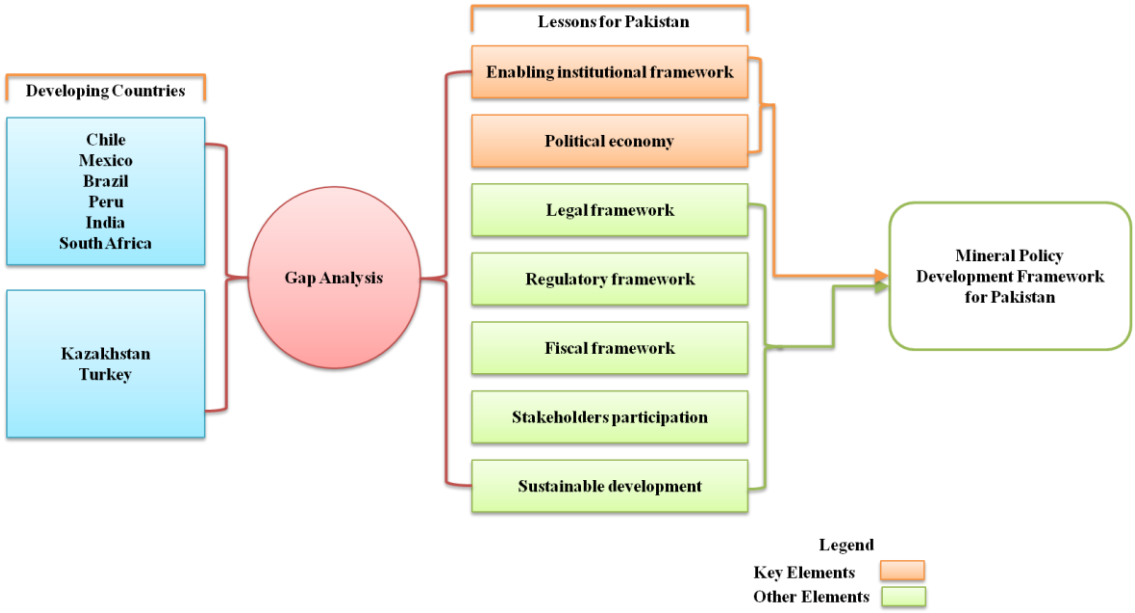


Figure 10.5 Gap analyses between eight developing countries and Pakistan and its process of development.

10.3.2 **The new PakMining Cadastre System.** The PakMining Cadastre System suggested in this thesis will be the principal public instrument that will reflect mining titles in Pakistan. PakMining Cadastre, in the Directorate of Mining Cadastre and GIS Database, will integrate the regulatory, institutional, and technological aspects of mineral-rights administration and form the cornerstone of good mineral-resource management in Pakistan. PakMining Cadastre System, its institutional support, and principles followed are given in Figure 10.6.

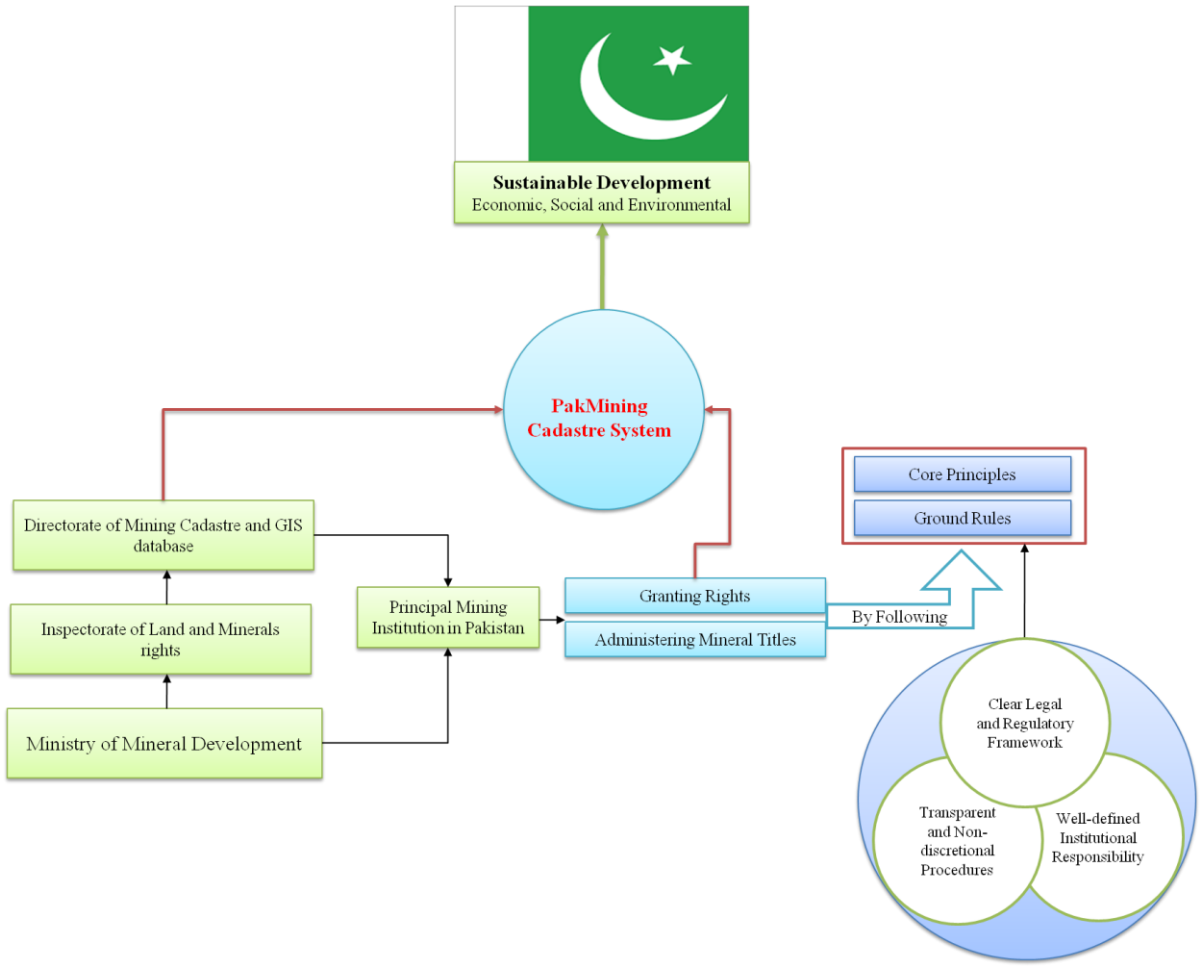


Figure 10.6 Institutional support and the principles followed by PakCadastre System.

The PakMining Cadastre System is designed to manage and facilitate the workflows required for the efficient administration of mineral titles. The system achieves this by scheduling and managing rule-based actions within an intuitive and easy-to-use application. A two tier architecture that separates the system into a database tier and a system-design tier has been

suggested for the PakMining Cadastre System. The system-design architecture is suggested and explained in Figure 9.6 (Chapter 9).

A PakMining Cadastre Unit (PCU) was suggested to be adapted by Pakistan's mining sector. A PCU is a quadrangular polygon with constant dimensions that is referred to and has a fixed position within a system of coordinates. A PCU is based on geographic coordinates system and datum that is being used by the maps produced by the Survey of Pakistan. Every mineral license should be made up of a certain number of PCUs; thus the dimensions of the sides of any polygon corresponding to a mining license and mining rights will always be in multiples of a single side of the PCU. (Explained in Figure 9.7, Chapter 9).

10.4 **Recommendations**

Following are the recommendations for Pakistan to work towards national mineral-based growth:-

10.4.1 **Recommendation 1: Enabling institutional framework to provide an investor-friendly environment.** The following are some of the institutional recommendations:-

- Mining should be separated from the Ministry of Petroleum and Natural Resources and a new ministry, namely the Ministry of Mineral Development should be constituted. The suggested organisation of the new Ministry is shown in Figure 8.4.
- It is recommended that a Mineral Development Advisory Committee (MDAC) be constituted under the Ministry of Planning and Development to oversee the development of the new Ministry of Mineral Development (MMD) and to implement the actions suggested in the mineral policy development framework. Suggested composition of MDAC is given in Figure 9.2, Chapter 9. The MDAC should forward its recommendations to the Ministry of Planning and Development which should then

draft the required constitutional amendment for the implementation of the mineral development framework.

- The new MMD should constitute following Directorates and Inspectorate to be able to be in line with international best practice (Composition of the Ministry is explained in Figure 8.4):-
  - Inspectorate of Mines Health and Safety;
  - Inspectorate of land and Mineral Rights;
  - Sustainable Development Directorate; and
  - Mining Cadastre System and GIS Database.

10.4.2 **Recommendation 2: Political economy is imperative for mineral development.** Pakistan needs to foster a political economy that is friendly towards foreign investors and multinational mining corporations. The following are some of the reforms that should be undertaken in Pakistan's political and economic sector:-

- Continuity in the political system (after introducing checks-and-balances in the current system) is important to build the confidence of investor. A national debate is recommended to decide about the form of Government and the role of Military in the functioning of the State. Whatever form is agreed in the debate should be implemented and respected by all stakeholders;
- The economic benefits from mineral development should be transformed into national benefits by following mineral beneficiation standards; and
- Infrastructure development should be announced as national priority by completing the CPEC project and the Gwadar port per the stipulated timeline to provide easy sea-access to Pakistan's mineral-rich areas adjacent to Gwadar, Approximately 80% of Pakistan's mineral resources are located on the western border and the western CPEC

route ideally runs through all these resources. This will attract considerable foreign investment because the communication-infrastructure will be uplifted by completion of the western route of CPEC;

- Pakistan's Gold and Copper reserves at Reko Diq should be connected to the western route of CPEC by constructing a new 300 Km road to join N-25 National Highway with CPEC at Khuzdar;
- Thar coal reserves should be connected with the existing National highway of Karachi at Hyderabad by improving the existing road network.

10.4.3 **Recommendation 3: Legal and regulatory reforms in the mining sector**. The legal and regulatory reforms recommended for the mining industry in Pakistan are covered in Appendix G.

10.4.4 **Recommendation 4: Fiscal reforms in the mining sector of Pakistan.** The fiscal reforms for a strong treasury are recommended Appendix H. The following recommendations in fiscal regime should be given due consideration:-

- **Mining Fiscal Regime:** Pakistan should effectively appropriate the mineral rents, while leaving mining investors with sufficient return to compensate for the cost of capital and risk. The regime should be laid out in laws that have little scope for project-by-project negotiation, which, in turn, will contribute to the predictability and objectivity of the fiscal regime. Whereas a low-tax regime is of importance to mining investors, a predictable one will provide greater confidence. A recommended progressive fiscal regime is provided in Figure 10.7.

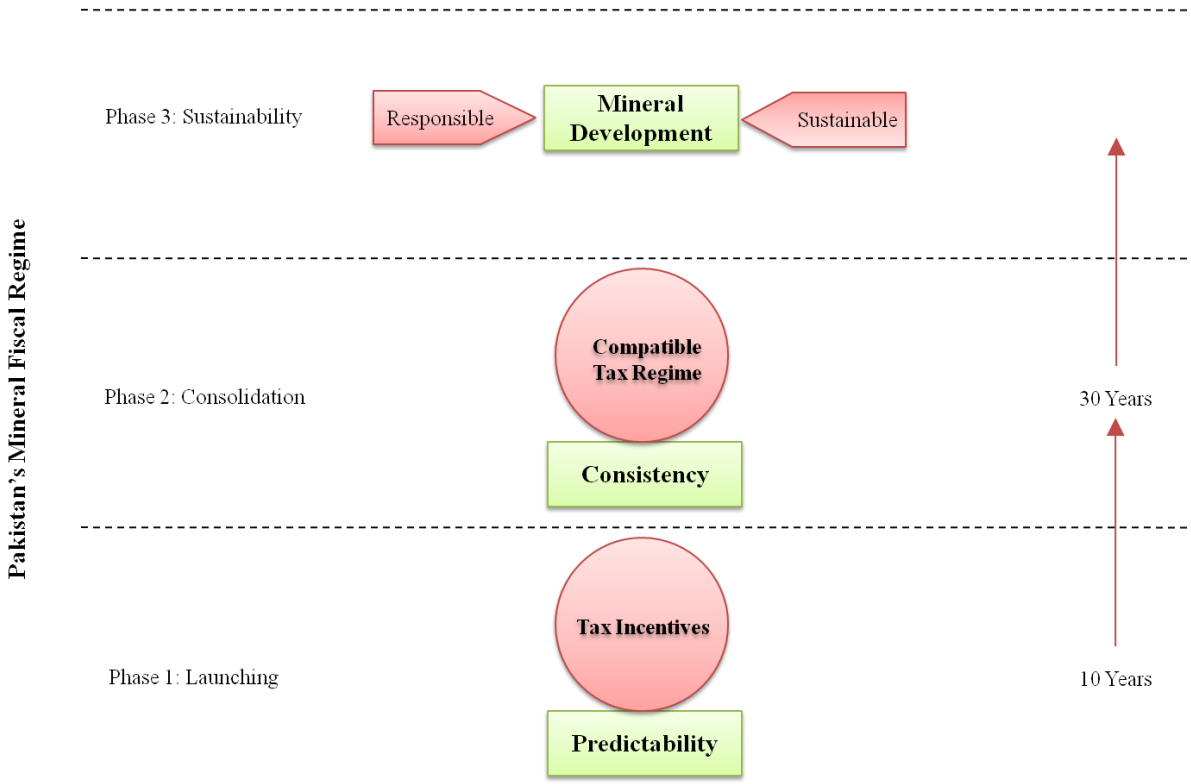


Figure 10.7 Recommended progressive fiscal regime for mineral sector of Pakistan.

- **Investment of Mineral Revenues.** A principle that should be used by Pakistan is that all mineral revenues must be saved or reinvested in economic, social or human capital. This will lead to the conversion of mineral-wealth to economic, social and human capital. The implicit assumption should be that these types of assets offer higher rates of return than financial assets. To the extent that financial assets have been accumulated, these largely serve for stabilisation purposes rather than as a source of future annuity income (funds for future generations). Recommended investment schemes for mineral revenues of Pakistan are given in Figure 10.8.

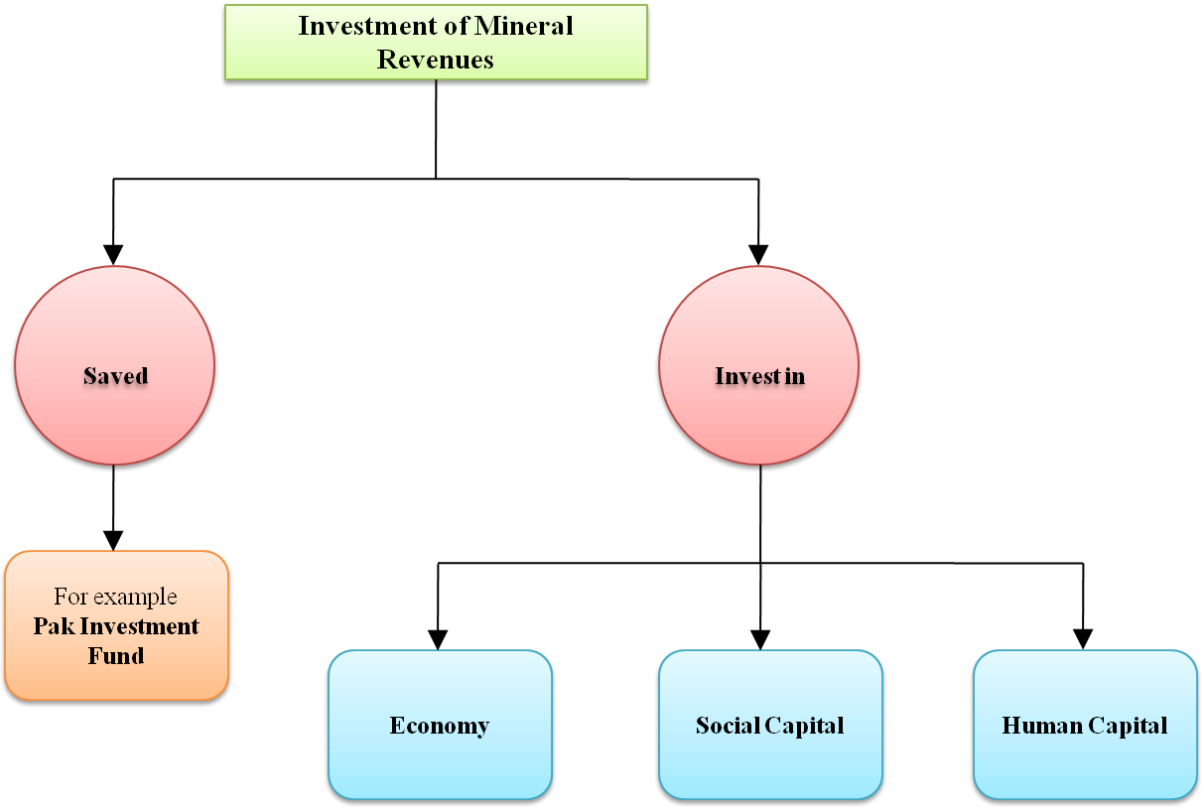


Figure 10.8 Recommended investment schemes for mineral revenues of Pakistan.

- **Expenditure management rules.** It is recommended that even when resources are apparently abundant, discipline be maintained with regard to project appraisal, and other mechanisms be used to ensure the effectiveness of public spending.
- **Consider intergenerational fairness.** It is recommended that a clear target be set in place for the accumulation of financial assets which are to be set aside for future generations. This becomes particularly important when revenues reach their peak and the country reaches good levels of physical and human capital such that the needs of current generations become less urgent.

10.4.5 **Recommendation 5: Stakeholders participation framework.** All the six critical stakeholders identified in this research should be taken on board before launching this framework. Special attention must be given to the local community/ populace of Baluchistan and KPK to incorporate their recommendations.

10.4.6 **Recommendation 6: Sustainable mineral development.** A new Sustainable Development Directorate is recommended to be constituted in the new Ministry of Mineral Development (Figure 8.4). Recommendations regarding sustainable development are given in Appendix I.

10.4.7 **Recommendation 7: Mining Cadastre System and GIS Database.** Development of a new PakMining Cadastre System that will guarantee security of tenure to the foreign and local investors is recommended. The design parameters and implementation strategy of the new Mining Cadastre System have been explained in Chapter 9.

10.4.8 **Recommendation 8: Need for skills.** There is a need to start university programmes that will deliver the required skills at all levels, for both the mining industry and the government. One such initiative is already underway at National University of Science & Technology (NUST) with coloration with University of Witwatersrand, Johannesburg, where necessary skills are being developed to establish a mining school.

10.5 Conclusion

Chapter ten was an attempt to summarize the research. The objectives of the research were reiterated and the process followed during the course of research was explained. Specific recommendations were suggested for Pakistan to move towards a strategic-fit for mineral policy framework. An implementation plan for the newly developed policy framework was discussed. The design schema for a Mining Cadastre System for secure mineral rights system was discussed and recommendations were made for its implementation.

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Appendix A

Policy parameters and gap analysis of selected developing countries and Pakistan

Description	Chile	Mexico	Brazil	Peru
Mineral policy	Mining Code (1983)	Mexican Mining Law of 1992[169]	The Mining Code (Act No. 227) of 1967	General Mining Law of 1992
Legislation	(1) The Constitution of the Republic of Chile, Article 19, No. 24, subparagraphs 6 to 10. (2) Organic Constitutional Law on Mining Concessions (1982)	Article 27 of the General Constitution of Mexico	Article 176 of the Brazilian Federal Constitution of 1988	The General Law of the Environment (2005), the Law for Environmental Legacies of Mining Activities, the Mining Investment Promotion Law (1991), the Supreme Decree Regulating Mining Procedures and Environmental Protection (1993), the Control of Mining Activities Law, and the Decree of Regulation of Environmental Protection of Mining Activities.
Legal framework	Legal guaranties assuring ownership of mineral holdings are provided for, and are derived from, the Constitution of Chile and by Basic Constitutional Laws, Codes and Regulations which apply specifically to the mining industry.	Legal certainty assuring ownership of mineral holdings is provided for, and derives from the Mexican Constitution and by federal laws, regulations and Mexican Official Standards, which apply specifically to the mining industry.	Legal guaranties related to the performance of mining activities are provided for, and are derived from the Brazilian Federal constitution, the Mining Code and some laws and regulations which apply specifically to the mining industry.	According to the Constitution, the state holds sovereign rights to all renewable and non-renewable natural resources in Peru, including water. Organic laws define the terms for their use and concession to private parties.
State agency	Ministry of Mining Chile	The Ministry of the Economy exercises its authority on mining companies through General Coordination of Mines, which in turn relies on the General Bureau of Mines.	At the federal level, there are three key government agencies – the Ministry of Mines and Energy (MME), the National Department of Mineral Production (DNPM) and the Geological Survey of Brazil (CPRM).	The Ministry of Energy and Mines (MENIM). This Ministry grants mining concessions to both local and foreign companies, through a body called The Institute of Geology Mining and Metallurgy (INGEMMET)
Mineral royalties	N/A[170]	N/A[171]	0.2 – 3% (Net scale)	Based on operating profits, ranging from 1% to 12%[172]

[169] Amended in 2005 to simplify the regulation of mining concessions through the merging of the exploration and exploitation regimes into one single regime; and came into full force and effect on 1 January 2006.

[170]There is a flat tax (not considered a 'royalty' itself) on people who carry out mining exploitation and achieve mineral sales over a certain volume in Chile. This tax is progressive and is charged on the operating income (taxable net income less operating expenses) of a mining producer at rates ranging from zero (annual sales of less than 12,000 tons of fine copper or equivalent) to 4.5 per cent (annual sales of up to 50,000 tons of fine copper or equivalent). In the case of mining producers with annual sales of more than 50,000 tons of fine copper or equivalent, the tax applies to the 'mining operating margin' (the meaning of which is defined in Article 64-bis of the Law on Income Tax) from a rate of 5 per cent of a mining operational margin of below 35 per cent, gradually increasing up to 14 per cent if the mining operation margin exceeds 85 per cent. This is a tax that only applies to mining exploiters and not to mining explorers.

[171] All the mining specific royalties and taxes were revoked in the 1990s to attract international investment in the mining industry.

[172] The new legislation does not apply to mining companies with fiscal stabilization agreements in place, under the General Mining Law, at the time it became effective (2011)

Corporate income tax	20 %[173]	28% and decreasing every year	34 %	30 %
Specific Mining Tax	14 %[174]	17.5% (Flat rate business tax)	1% - 2%[175]	Based on a sliding scale, with progressive marginal rates ranging from 2% to 8.40%, of a company's operating profits.
Exploration fee	0.5 – 4 %[176] (UTM[177] per hectare)	(1) 1st and 2nd year - 0.39 US$=0.0039 (2) 3rd and 4th year – 0.58 US$=0.0058 (3) 5th and 6th year – 1.21 US$=0.0121 (4) 7th and 8th year – 2.43 US$=00243 (5) 9th and 10th year – 4.86 US$=0.0486 (6) From the 11th year – 8.63 US$=0.0863 (per hectare=per Km²)	1.19 US$ per hectare (0.0119 US$ per Km²) for first term and 1.80 US$ per hectare (0.018 per Km²) during the period of renewal of the licence.	-
Licence fee	Calculation is based on the number of hectares being solicited and using the UTM published for the month in question as well as utilizing a factor developed ad hoc (Formulario 10) by the Treasury of the Republic.	Article 63 of the Mexican Government Service Charges Law provides for the payment of fees for the application for a mining concession, based on fixed rates for lower and higher parameters per hectare covered by a mining concession and for the additional hectares exceeding the lower parameter.	1.19 US$ per hectare for first term and 1.80 US$ per hectare during the period of renewal of the licence.	10% of a Tax Unit (approximately 135 US$) and the Good Standing Fee for the first year.
Advance annual fee	Being under the obligation to protect the mining concession in Chile entails the payment of an early annual patent, by March each year, the amount of which varies depending on the type of concession. For every hectare or fraction covering an exploration concession, a sum equivalent to one-fiftieth of a monthly tax unit (UTM)[178] must be paid, and for the surface comprising the exploitation concession, the equivalent sum of one-tenth of a UTM must be paid.	Article 263 of the Mexican Government Service Charges Law provides for the payment of semi-annual fees based on a rate per hectare covered by a mining concession. The semi-annual rates are increased every two years up to the tenth year when they become fixed throughout the remaining term of the concession.	Annual Hectare Fee – TAH ("Taxa Anual por Hectare"): A fee per hectare to be paid by the holder of the Exploration Authorization each year until the delivery of the Final Research Report to DNPM.	Starting from the year in which the mining concession request is filed, its holder is required to pay a Good Standing Fee (*Derecho de Vigencia*) of 3 US$ per year and per hectare granted or applied for. The payment of the Good Standing Fee is due on 30 June every year. Failure to pay the Good Standing Fee in a timely manner for two consecutive years is a cause for forfeiture.

[173] The Corporate Income Tax rate was raised from 17% to 20% during the fiscal year 2011.
[174] The Specific Mining Tax regime may not apply to foreign investors that had signed foreign investment contracts with the Chilean Government under Decree Law 600 including mining tax invariability
[175] Compensation for Exploitation of Mineral Resources (CFEM)
[176] Depending on the size of area from 300 hectares to 5,000 hectares
[177] Monthly Tax Unit (UTM), which is a number, adjusted monthly, said to represent some percentage of average monthly taxes paid by companies.
[178] Unidad Tributaria Mensual

Mineral ownership	In accordance with Article 19, paragraph 24 of the CRC[179], the state has absolute, exclusive, inalienable and non- prescribable ownership of all mines.	The Mexican nation has direct ownership of mineral deposits within the national territory	According to Article 176 of the Brazilian Federal Constitution of 1988, all mineral fields ("jazidas") located within Brazilian territory belong to the Federal Government, whether these involve mining production or not. These mineral fields are deemed to be distinct from real estate where they are located.	According to the Peruvian constitution, all mineral resources are vested in the government.
Level of ownership	All minerals are property of the State and only Federal Government is responsible for exploitation of mineral resources.	All minerals are the property of the state.	All minerals are property of the State and only Federal Government is responsible for exploitation of mineral resources.	All mineral resources are the property of Peruvian government. Private parties can exploit mineral resources under the concession system (mining lease). General Mining Law states that local and international trading of minerals is liberated.
Security of tenure	The Mining Law provides that the owner of the mining property has the right to protect these rights whether against another individual or against the State itself	The exploration, exploitation and processing of minerals or substances governed by the Mining Law are considered of public benefit and therefore have preferential status over any other use of the land, subject to the conditions imposed by the Mining Law. Under Article 27 of the Constitution of Mexico (1917) all minerals and substances existing in veins, strata, masses or beds, and which constitute deposits of nature different from land, are the property of the state	Mining concessions are granted without a pre-established term, and are linked to the depletion of the deposit. The grant is made through an administrative act (mining lease) published in the Official Gazette of the Union.	Under the legal and regulatory regime, mining concessions have an indefinite term provided that (i) a minimum annual level of production or investment is met and (ii) an annual concession fee is paid. The irrevocability of mining rights subject to the fulfilment of these obligations provides security of tenure within the mining regime in Peru and reasonably assures the transition between the exploration and mining phases.
Rights registry	A concession to explore or of a mining claim is recorded in the Registry of Discovery of the corresponding registry of mines.	The Ministry of Economy is responsible for the mining registries and recording activities and is empowered to execute the agreements, concessions, allotments, permits and authorizations covered under the Mining Law and its Regulations.	The National Department of Mineral Production (DNPM) maintains the registry.	Public Mining Registry maintained at INGEMMET.
Environmental provision	Chilean legislation protects the environment and the property owner (operator) is to meet certain requirements and to accept certain responsibilities. These are initiated from the inception of prospecting a	The exploration, development and operation of a mining project in requires the observance of several topics intended to protect the environment, which result in the obligation to verify/secure certain environmental permits, licenses and	Brazilian Federal Law No. 6,938/81, that establishes the National Policy of Environmental Protection and Resolution No. 237/97 issued by the Federal Environmental Council – CONAMA. All activities are subject to mandatory	An environmental impact assessment (EIA) is mandatory to gain a license. New mining development and production activities are required to file and obtain approval for an Environmental Impact Study

[179] Constitution of the Republic of Chile

		property (Article 10 No. 1, Environmental Law) when an Environmental Impact Statement must be filed (and approved). Subsequently, as the project proceeds towards production and installation of plants, Environmental Impact studies along with guarantees and controls must be filed and approved.	authorizations, namely (i) Natural Protected Area; (ii) Forest Land-Use Change; (iii) Environmental Impact Authorization; (iv) Land Use License & Construction Permit; and (v) Permit for the Use of Explosives, among others, and the obligation to observe a number of Mexican Official Standards (i.e. leachate impoundments).	environmental licensing by the Federal or State Environmental Agency, depending on the extension of the potential environmental impact. Environmental licenses shall be granted prior to the construction, installation, expansion or operation of the mining activity. As a general rule, for the issuance of the Preliminary License, a previous Environmental Impact Study – EIA and a corresponding Environmental Impact Report – RIMA are required.	("EIS"), which incorporates technical, environmental and social matters, before being authorized to commence operations. The Environmental Evaluation and Oversight Agency, ("OEFA") monitors environmental compliance. OEFA has the authority to carry out unexpected audits and levy fines on mining companies if they fail to comply with prescribed environmental standards.
Special incentives		Under DL 600, firms that bring capital, physical goods and other forms of investment into the country can ask to sign a foreign-investment contract with the government. The regulation includes a specific clause for the mining sector, applicable to projects worth at least US$50 million, which grants investors a fixed corporate income tax rate for 10 years.	(1) International standards tax regulations and access to capital sources through lines of credit. (2) Efficient processing of exploration and development claims. (3) Elimination of sixteen percent value added tax on all stages of gold commercialization.	(1) No limitation on the repatriation of capital; reinvestment of profits is considered an increase of the original capital for the purposes of the law. (2) Prohibitions on remittances for royalty and technical service payments between related parties were removed in the 1992 tax code. (3) The base tax rate on profits and royalty remittances was reduced from 25% to 15%. (4) In 1995, Brazil amended its constitution to eliminate the distinction between foreign and national capital.	(1) The Peruvian Constitution guarantees free access, possession, and disposal of foreign currency. (2) Investors may conclude a tax law stability agreement with Peruvian government. (3) There is also a Special Mining Tax (SMT) which is mining specific tax levied by the central government.
Award of concession		Mining concessions are awarded in a non-contentious legal proceeding, and can be of two types: exploration concessions and exploitation concessions.	A mining concession is an authorisation granted by the federal government. It is a unilateral administrative act whereby a specific activity is authorised to be carried out under particular rules or over public assets.	A concession is granted through an ordinance of the Ministry of Mines and Energy through an authorization from the Federal Government.	The applicant must file to INGEMMET a request for a mining concession.
Exploration concession	Size	A minimum of 100 hectares and a maximum of 5,000 hectares for each concession, and only one concession request is allowed	-	50 hectares to 10,000 hectares, depending on the mineral to be explored and the area within Brazil where exploration will take place.	-
	Duration	The first period is for two years and the second one for an additional two years (which must be solicited). The second period is granted when 50% of the initial area is abandoned.	Six years (non-renewable)	1 - 3 years Such licenses are then renewed on the basis of analysis and approval of the Final Exploration Report.	-
Mining	Size	A minimum for each concession is 1	-	50 hectares	100 hectares - 1,000 hectares

concession		hectare and the maximum is 10 hectares, and applicants are allowed to request a group of concessions together up to 1,000 hectares.			
	Duration	Unlimited duration	Mining concessions have a term of 50 years from the date on which the relevant title is recorded in the Public Registry of Mining.	Mining concessions are granted by the MME. The concessions are granted for the period till the mineral deposit is exhausted.	Unlimited period
Description		**India**	**South Africa**	**Kazakhstan**	**Turkey**
Mineral policy		Mines and Minerals (Development and Regulation) Bill, 2011	Mineral and Petroleum Resources Development Act, 28 of 2002 [MPRDA]	The Subsurface Law of 2010	Mining Law No 3213, 1985. Further amended in 2005 by Law 5177 and 2010 by Law 5995
Legislation		Entry 54 of the Union List (List I) and Entry 23 of the State List (List II) of the Seventh Schedule of the Constitution of India.	Mining Charter in 2002, amended as Mining Charter 2010	The oil and gas and mining industry are governed by the Law of the Republic of Kazakhstan dated 24 June 2010 No. 291-IV On Subsurface and Subsurface Use (as amended, the "Subsurface Use Law") which replaced the Law of the Republic of Kazakhstan dated 27 January 1996 No. 2828 On Subsurface and Subsurface Use.	Constitution of the Republic of Turkey
Legal framework		The *Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)*, lays down the legal framework for the regulation of mines and development of all minerals	The principal statute is the MPRDA, Precious Metals Act 2005, the Diamonds Act 1986, the National Water Act, 1998 (NWA), the National Environmental Management Act 1998 (NEMA), the National Environmental Management: Air Quality Act 2004 (the Air Quality Act), the National Environmental Management: Waste Act 2008 (the Waste Act), the Mineral and Petroleum Resources Royalty Act 2008 (the Royalty Act) the Mine Health and Safety Act 1996 (MHSA) and the Mining Titles Registration Act 1967.	Legislation of the Republic of Kazakhstan on subsoil and subsoil based on the Constitution of the Republic of Kazakhstan and consists of this Law and other regulations of the Republic of Kazakhstan. Civil legal relations connected with the right of subsoil use are governed by civil legislation of the Republic of Kazakhstan, if they are not regulated by the provisions of this Act. Kazakhstan has an investment law which sets out the legal framework for investment. The *Kazakh Law on Foreign Investment (1994)* defines state guarantees regarding investor's right. It also defines dispute resolution mechanism between investor and the state and the non-discrimination between local and foreign investors.	The *Implementation Regulation on Mining Activities* dated 6 November 2010 and the *Mining Activities Permit Regulation* dated 21 June 2005 (amended from time to time) is also applicable to mining in Turkey.
State agency		Management of mineral resources is	The Mineral Policy and Promotion Branch	Solid mineral contracts are administered by	General Directorate of Mining

	the responsibility of both the Central Government and the State Governments	of the Department of Mineral Resources (DMR)	the Ministry of Investment and Development (MID).[180] The MID regulates the mining activities in the country through its committee on Geology and Subsoil use. The Geology committee also has regional offices in its different territories.[181] Depending upon the sphere of activities, the mining industry is further regulated through different legislative Acts. The Ministry of Industry and New Technologies, (previously - Ministry of Energy and Mineral Resources) grants exploration and production rights.	Affairs (GDMA), a unit of the Turkish Ministry of Energy and Natural Resources (the Ministry).
Mineral royalties	0.2%- 20%	0.5% - 7%[182]	1% - 5.7%	4%
Corporate income tax	.22% for Indian companies &42.23% for foreign companies.	28 %	20 %	4%[183]
Specific Mining Tax	SMT[184] @ from 0.2% to 20%.	-	EPT[185] @ 10-60%	Dividends @ 15%
Exploration fee	Five rupees[186] per Km²=0.08 US$			
Licence fee	Five rupees per square kilometre			
Advance annual fee	-	-	-	-
Mineral ownership	Central Government and the State Governments	Mineral and petroleum resources are the common heritage of all the people of South Africa and the State is the custodian thereof for the benefit of all South Africans.	In accordance with the Constitution of the Republic of Kazakhstan subsoil and of their natural resources are state properties.	The state has exclusive and imprescriptible ownership of mineral resources.
Level of ownership	Central Government and the State Governments	Dual system in which some mineral rights are owned by the State and some by private holders. Section 3 of the MPRDA provides that the state shall be the custodian of the nation mineral and petroleum resources. The mining industry is, therefore, regulated at national level.	Central Government	All minerals are property of the State and only Federal Government is responsible for exploitation of mineral resources.
Security of tenure	Greater stability of tenure of mineral concessions, since the minimum period of a mining lease is twenty years and a	In terms of the Mineral and Petroleum Resources Development Act, new order rights may be registered, transferred and	To obtain subsurface use rights, a subsurface user will enter into a subsurface use contract setting out its rights with	-

[180]Before 2010 this Ministry was known as the Ministry of energy and Mineral Resources.
[181]Eastern, Western, Northern, Southern and Central territories.
[182]The Mineral and Petroleum Resources Development Act ("MPRDA") applies variable royalty percentage rates based on whether the mineral is refined or unrefined. The minimum royalty percentage in the case of refined minerals is 0.5% and the maximum royalty percentage is 5%.And, in the case of unrefined minerals, the minimum royalty percentage is 0.5% and the maximum royalty percentage is 7%.
[183]Actual corporate tax for mining is 20% but it reduces to 4% for mining companies due to tax incentive.
[184]Special mining tax.
[185]Excess Profit Tax.
[186] @ of 1 rupee = 0.02 USD

	maximum period of thirty years.	traded, while existing operators are guaranteed security of tenure.	respect to a particular subsurface use area. The competent governmental authority for the execution and oversight of subsurface use contracts is the Ministry of Industry and New Technologies of the Republic of Kazakhstan for mining and the Ministry of Oil and Gas of the Republic of Kazakhstan for oil and gas.	
Rights registry	The State Government shall cause to be maintained in the G-1 and H-1 forms; a register of applications for prospecting licences; a register of prospecting licensees; a register of applications for mining leases; and a register of mining lessees;	Registered at the Mineral and Petroleum Titles Registration Office. This office serves as a specialised registry in relation only to mining titles and documents incidental thereto.	-	The GDMA is responsible for keeping the records of the Mining Registry in accordance with the Regulation Regarding the Implementation of the Mining Activities (the Implementation Regulation).
Environmental provision	No mining lease would be granted to any party, private or public, without a proper mining plan including the environmental management plan approved and enforced by statutory authorities. The environmental management plan should adequately provide for controlling the environmental damage, restoration of mined areas and for planting of trees according to the prescribed norms.	A holder of a mining right must consider; (1) Investigate, access and communicate the impact of their activities on the environment comprehensively. (2) Must, as far as is reasonably practicable, rehabilitate the environment to its natural or predetermined state, or to a land use which conforms to the generally accepted principle of sustainable development. (3) Is responsible for environmental damage, pollution or ecological degradation as a result of reconnaissance, prospecting or mining operations which may occur inside and outside the boundaries of the areas to which such right, permission or permit relates. (4) Must ensure that it will take place within the framework of national environmental management policies, norms and standards. To ensure this, the MPRDA includes some key legal and regulatory mechanisms such as the Environmental Management Plan (EMP; explained further in principle 5)	The Ministry of Environmental Protection of the Republic of Kazakhstan (“MEP”) is the principal state authority for environmental protection. It issues environmental permits and licenses, and establishes limits for environmental emissions among other things.	Prior to the commencement of mining activities, and upon the issuance of the respective mining licences, the mining companies are obligated to undergo detailed environmental processes and obtain various permits and licences depending on the scope of the activity. Mining licence holders are further required to take all steps necessary to reinstate and rehabilitate the lands that are disrupted through the mining activities on their cessation. Only upon determination by the respective authorities that the respective lands have been completely reinstated will the sum that was deposited as a guarantee for environmental compliance be returned to the licence holder.
Special incentives	(1) Mining carried out in Special Economic Zone (SEZ) is eligible for tax holiday. (2) Import customs duty rate of 5% against the normal rate of 12.5% for	A tax holiday scheme for any newly formed company commencing new manufacturing activities that qualify under the law.	(1) Guarantees of the legal protection of investor's’ activities on the territory of the Republic of Kazakhstan (2) Investors shall have the discretion to use income, generated from their	(1) 50% less royalty by creating additional added-value by processing minerals in the country. (2) If the production takes place underground, the mining company

		coal mining projects. (3) No enhancing of royalty on mineral more than once during any period of three years.		activities, after paying the taxes and other compulsory payments towards budget. (3) Guarantees for the protection of the investor's' rights during nationalization and requisition	pays 50% less royalty. (3) The Value Added Tax (VAT) is collected on all minerals except gold, silver, and platinum exploration expenditures.
Award of concession		Through an application to the Federal and State Government who will take the decision according to the existing rules and regulations.	All applications for the various types of mining authorisations are made to the regional office of the DMR and are processed in the regional offices before they are sent to the head office for granting.	Through a tender and direct negotiation.	General Directorate of Mining Affairs (GDMA) issues the mining licences and permits for different areas of mining activities; however, as per the circular of the Prime Ministry dated 16 June 2012 and numbered 2012/15, the issuance of mining licences is subject to approval of the Prime Ministry.
Exploration concession	Size	After completion of two years, the area shall be reduced to one thousand Km² or fifty percent of the area granted, whichever is less			
	Duration	3 months	3 Years (Renewable)	Such contracts may be entered into for a term of six years, with the right to extend for appraisal of a commercial discovery. The subsurface user that has made a commercial discovery under an exploration contract has the exclusive right to negotiate a production contract.	
Mining concession	Size	Four hectares, in respect of all mineral deposits other than beach sands or placers (two hectares) and One hectare, in respect of small deposits.			
	Duration	20-30 years	30 Years (Renewable)	The term is not fixed but rather depends on the plan for production operations.	
Description		**Pakistan**	**Best Practice**		**Gap**
Mineral policy		The National Mineral Policy 2012	One single Act or Law		There is one National Mineral Policy and four different provincial mining concessions which creates confusion in legal framework of the country. • Federal: National Mineral Policy 2012 • Punjab: National mineral policy 2012 and Punjab Mining Concession Rules, 2002

			• Sindh: National mineral policy 2012 and Sindh Mining Concession Rules, 2002 • KPK: KPK Mineral policy 2014. • Baluchistan: National Mineral Policy and Baluchistan Mineral Rules 2002
Legislation	Article 141, 142 & 172 of the constitution of Islamic republic of Pakistan, 1973	Protected under the article of constitution	Minerals and mining is covered under article of constitution but this provision is superseded by the 18th amendment in the constitution where all powers were relegated to the Provinces.
Legal framework	(1) Provincial Governments/federating units are responsible for regulation, detailed exploration, mineral development and safety concerns in these operations, whereas geological/geophysical survey and mapping, national and international coordination and formulation of national policies and plans are federal responsibilities (2) 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.	The mining law is based on the overall constitution and sets out from other laws which augment the mining law, like economic laws	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 mineral resources. However till now only KPK has been able to formulate its provincial mineral policy and all other provinces are still following the National Mineral Policy.

		Statistical analysis			
		Range	**Average**	**Standard deviation**	
Mineral royalties	State/ provincial royalties @ Precious stones 10%, precious metals and semi-precious stones 3%, base, metals 2%, all other minerals 1%.	20%	5.3%	6.4%	Royalties and taxes in Pakistan are within the standard deviation limit of all selected countries.
Corporate income tax	25% - 35 %[187]	38.23%	25.8%	11.38%	
Specific mining tax	6% - 15%[188]	20%	9.8%	8.8%	
Exploration fee	2.5 US$ / Km² (10% area of Reconnaissance license and not exceeding 1000 Km²).	0.076 US$ per Km²	0.032 US$ per Km²	0.042 US$ per Km²	Exploration fee in Pakistan is 2.4 US$ per Km² higher than the limit of standard deviation of the selected

[187] Turnovers not exceeding Rs.250 million has been allowed the benefit of a reduced corporate tax rate at 25% against the normal corporate tax rate of 35%.
[188] Withholding tax that includes dividends @ 10%, Non-Resident Contractors @ 6% and 15% shall be deducted from the gross amount paid to a non-resident person on account of royalty and fee for technical services.

					countries.
Licence fee	(1) 50 US$; one-off payment at the start of operations. (2) Rs.3/- (Rupees three only[189]) per acre per annum (0.00012 US$ per Km²). The fee shall be enhanced by 50% over the last fee paid each time the license renewed. The fee shall be paid in advance for each year of renewal of prospecting license.	1.11 US$ per Km²	0.64 US$ per Km²	0.75 US$ per Km²	Licence fee in Pakistan are within the standard deviation limit of all selected countries.
Advance annual fee	0.05 US$ per acre. (1) The licensee shall pay such annual fee as is notified by the Government from time to time for the land license. The fee shall be enhanced by 50 per cent over the last fee paid each time the license is renewed. The fee shall also be payable for the period of renewal granted under rule 124, as a single renewal or term, as the case may be. (2) The fee shall be payable for each mineral separately even if the area under license for different minerals is the same.	-	-	-	-
Mineral ownership	Nuclear minerals and those found in the territory under control of the federal government are the ownership of the federal government, while all other mineral resources are under direct control of provincial governments.	**Best Practice**			Mineral ownership in all selected countries rests with the state except India where the ownership is divided between State and Provincial Governments. Pakistan system of ownership where all minerals except Nuclear minerals are the ownership of Provinces is not in line with the best practice of the selected countries.
		State owned			
Level of ownership	Federal and provincial governments.	Federal Government			
Security of tenure	Generally non-exclusive in provinces, especially in the province of Punjab and Sindh.	Protected in legal framework through an act			No specific provision for security of tenure in National Mineral Policy 2012 and Provincial Mineral Policies.
Rights registry	(1) At federal level provided by REGISTERED No. L7532. (2) None of the four provinces provides	Title registration office			Only provided at the Federal level but as all minerals is the ownership of the Provinces, there is no

[189] Equals to 0.03 USD per acre per annum (exchange rate @ 1 Pak Rupee = 0.01 USD on 13/9/2015)

		for the establishment and rigorous maintenance of a registry of applications filed for mineral titles.				provision for registry of applications filed for mineral titles.
Environmental provision		(1) Periodic reports detailing the measures taken by respective company for compliance with environmental requirements. (2) Take measures to prevent damage to the environment, and where some adverse impact on the environment is unavoidable, take measures to minimize such impact; (3) Make good, any damage caused to the environment, as far as possible, during the course of exploration or mining operations and on the cessation of such operations due to expiry, or cancellation of the mineral title.	Protected in legal framework through an act Filing of Environmental Impact Statement Verification of environmental permits, licences and authorizations			Protected in the National Mineral Policy 2012 but no mention of specific actions like filing of Environmental Impact Statement. No compulsion of verification of environmental permits, licences and authorizations
Special incentives		(1) Protection from Expropriation. (2) Repatriation of Capital & Profits allowed. (3)Mining operators will be allowed to insure their assets and risks with international insurance companies.	Special incentives in the form of foreign investment stature special tax relaxations/ exemptions Special foreign investment agreement with the Government No limitation of repatriation of capital			Special incentives are their but not according to the best practice.
Award of concession		Ministry of Petroleum and Natural Resources at Federal level and Ministry of Mines and Minerals at provincial level.	Legal proceedings On merit decision Through a unilateral administrative act First come first serve basis			No legal proceedings which are confidence building measure for foreign investors. The award of concession procedure is confusing as there are separate entities at Federal and Provincial level.
Exploration concession	Size	Divided into four types of Concessions: (1) **<u>Reconnaissance permission:</u>** **Size** Different for different Provinces: Baluchistan: 10,000 Km² Punjab: 5,000 Km² Sindh: 100 aq. Km **Duration** 12 months (2) **<u>Prospecting rights:</u>** **Size** Area not exceeding 1,000 Km² **Duration**	-	-	-	There are four concession titles with varying parameters which create confusion. These are not in line with best practice of only two types of titles.
	Duration		48 years	4 years	1.87 years	
Mining concession	Size		-	-	-	
	Duration		20 years	36.7 years	11.5 years	

		36 months (3) **<u>Retention permit:</u>** **Size** Area not exceeding 1,000 Km² **Duration** 36 months (4) **<u>Mining rights:</u>** **Duration** 30 years or the estimated life of the mine				

Appendix B

Tasks and responsibilities of each Wing - Ministry of Petroleum and Natural Resources

1. **Administration Wing.** Administration Wing consists of a Senior Joint Secretary, two Deputy Secretaries and seven Section Officers along with the support staff. The Wing is responsible for the following functions:-

- Personnel and General Administration of the Ministry (Secretariat). All matters relating to Administration of the Policy Wing, Oil and Gas companies, Geological Survey of Pakistan (GSP), Pakistan Mineral Development Corporation and Hydrocarbon Development Institute of Pakistan.
- Corporate affairs of oil and gas companies.
- All matters relating to technical assistance, tours and training.
- Coordination work of the Ministry and its attached departments, organizations with other ministries.
- Processing of non-development budget of the Ministry and its attached department.
- All matters relating to web site and networking of the Ministry.
- Coordination work related to P&NR committee on defence planning.
- All matters relating to the Parliament Business.

2. **Development Wing.** This wing comprises of one Senior Joint Secretary, two Deputy Secretaries and four Section Officers along with the complementary staff. Development Wing is responsible for all matters other than admin and personnel management of Policy Wing, Geological Survey of Pakistan, Government Holding (Pvt) Limited, Oil and Gas Development company Limited, Sui Northern Gas Pipeline Limited, Sui Southern Gas Company Limited, Islamabad Sui Gas Company Limited, Hydrocarbon Development Institute of Pakistan, Pak Arab Refinery Company Limited and Pakistan State Oil, Oil and

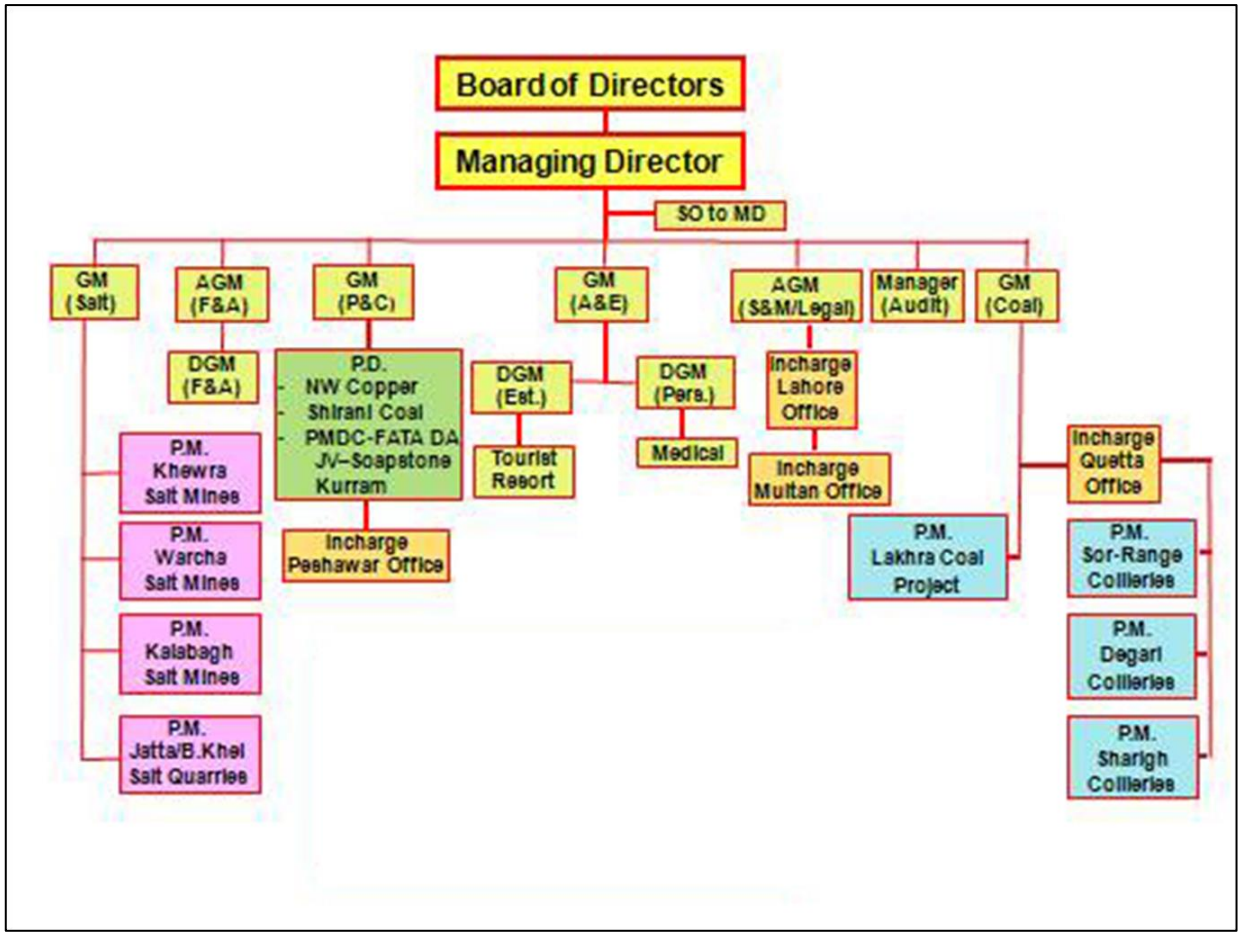
Gas infrastructure processing/approval and monitoring of development schemes; foreign aid/loan and coordination with World Bank, Asian Development Bank, Islamic Development Bank, Japan International Corporation Agency; Joint Ministerial Commissions, ECO & bilateral relations; Preparation of Development Budget (PSDP), long term plans, Economic Survey & Budget speeches; All policy matters, Executive Committee Of National Economic Council, Economic Coordination Committee, Cabinet Committee on Investment, Competition Commission Of Pakistan, Cabinet and implementation of decisions; and Foreign investment, privatization, import of natural gas projects.

3. **Mineral Wing.** This Wing has one Director General, two Directors and two Deputy Directors along with their complementary staff. The Wing is responsible for all development schemes of Geological Survey of Pakistan (GSP), Pakistan Mineral Development Corporation (PMDC), Saindak Metals Limited (SML) and Lakhra Coal Development Company (LCDC) and Thar Coal Development Project in co-ordination with Provincial Government concerned.

4. **Policy Wing.** The Policy Wing is comprised of (i) Directorate General of Petroleum Concessions (ii) Directorate General of Oil (iii) Directorate General of Gas and (iv) Directorate General of Admn /Special Projects. Each Directorate is headed by a Director General. The Policy Wing is responsible for developing policies for oil and gas sectors, forecasting future requirement and assessing the impact of existing policies, rules and regulations.

Appendix C

Organisation of Pakistan Mineral Development Corporation (PMDC)



Appendix D

Institutional gap in Pakistan's mineral industry and suggested fit for purpose measures.

S/No	Institutional gap	International best practice	Measure leading to best practice	Responsibility
1	**A separate Ministry for Mineral development.** Currently the Ministry of Petroleum and Natural Resources handles the business affairs of the mining and mineral development.	All the eight countries selected have a separate Ministry for mining and minerals which signifies its importance.	Pakistan should separate Mining and Minerals from the Petroleum and Gas resources through a constitutional amendment. A committee of stakeholders can first be formed incorporating all other important ministries to institutionalize the development of the new Ministry according to international best practice.	Ministry of Petroleum and Natural resources. (The suggested composition of the committee is shown in Figure 9.10)
2	**Inspectorate of Mine Health and Safety**	Inspection of mines is an important aspect of enforcing mineral policy e.g. Brazilian experience[190], [191].	• Development of Inspectorate at the Ministry of Mineral Development (MMD[192]). • Regularization and enforcement methodology for inspections must be drafted and enforced. • Mining companies must cooperate with inspection officers and provide technical and financial information on the entire chain of exploitation, production and commercialization of the mineral resources. • Investor, government and public understanding of Inspectorate may be improved through workshops.	Ministry of Mineral Development (MDD)[193] (Suggested organisation of MDD at Figure 8.4, Chapter 8)

[190] The National Department of Mining Production – **DNPM** ("*Departamento Nacional de Produção Mineral*") created by Decree No. 23,079/1934 is a federal government autarchy subordinated to the Brazilian Ministry of Mines and Energy ("*Ministério de Minas e Energia*") ("**MME**") vested with administrative power to inspect mining undertakings and to enact ordinances governing the regulation of mining activities.

[191] The DNPM also has a legal standing to impose administrative penalties on mining undertakings not performed in accordance with applicable requirements.

[192] The new Ministry that should come into force after consultation and constitutional amendment, this should look after the business of mineral development and mining operations in Pakistan.

[193] The existing Ministry responsible is the Ministry of Petroleum and Natural resources.

3	**Inspectorate of Land and Mineral Rights**	Inspectorate of Mining under the respective Ministry of Minerals, with coordination with the local urban development department[194] .	• Establishment of land use, resettlement and compensation body under the new Ministry of Mineral Development (MMD) to coordinate land use with local governments already in place. • Existing law and institutions may not be sufficient to address modern mining needs so clear policies on land use and land access for mining should be developed.	Ministry of Petroleum and Natural Resources, Land Department and Local Governments
4	**Sustainable Development Directorate**			
	• **Environment protection body**	Clear legal regime in all eight countries with environmental institutions, which look after this important aspect. (Chilean[195] and Brazilian environmental laws[196]).	• Clear rules and regulations regarding environmental protection need to be incorporated and a separate institution under the new Ministry should be responsible for its implementation. • The establishment of an *Environmental Evaluation Agency* under the *Pakistan Environmental Protection Agency*, which should monitor environmental compliance[197]. • It should have the authority to carry out unexpected audits and levy fines on mining companies if they fail to comply with prescribed environmental standards. • Environmental licenses shall be granted prior to the construction, installation, expansion or operation of the mining activity. • The interested party should, when presenting the mineral exploration, obtain orientation from the environmental protection agency on the procedures required in environmental licensing. • An environmental licensing proceeding should comprise of three phases represented by the issuance of three licenses: (i) the Preliminary License, which should authorize the location of the activity; (ii) the Installation License, which upon the fulfilment of the conditions imposed in the	Pakistan Environmental Protection Agency and Ministry of Petroleum and Natural Resources.

[194] Depending on the location of a mining project, a land use license permit is generally required by the Local Urban Development department in Mexico.

[195] In the Chilean case, The 1994 Law on Environmental Protection established a National Commission for the Environment (CONAMA), and empowered it to establish, review, and revise norms on environmental protection. The law also established the basis and requirements for environment impact assessments and empowered Regional Commissions on the Environment as well as the Executive Committee of CONAMA, depending on the region or regions affected, to review and issue decisions pertaining to the environmental concerns raised by EIAs. Similar laws are established in Brazil, Peru and South Africa.

[196] Mining activities are deemed highly potentially polluting activities pursuant to Brazilian Federal Law No. 6,938/81, which establishes National Policy of Environmental Protection and Resolution No. 237/97 issued by the Federal Environmental Council – CONAMA. Thus, these activities are subject to mandatory environmental licensing by the Federal or State Environmental Agency, depending on the extension of the potential environmental impact.

[197] The Environmental Evaluation and Oversight Agency, ("OEFA") of Peruvian government monitors environmental compliance. OEFA has the authority to carry out unexpected audits and levy fines on mining companies if they fail to comply with prescribed environmental standards.

			Preliminary License authorizes the installation of the activity; and (iii) the Operating License, which should authorize the start-up of the activities.	
	• **Dispute/Conflict Resolution.** Currently is absent. Formal guidelines, institutions for various disputes not clear.	Special dispute/ conflict resolution mechanism is enforced internationally for attractive investment environment.	• A separate Department for Conflict Resolution should be developed both at Federal and Provincial level under the Ministry of Mineral Development[198]. • The local governments should also be given a role to play in the conflict resolution as they are the major stakeholder in the area where mining is taking place.	Ministry of Petroleum and Natural Resources & the local governments.
	• **Stakeholder participation framework**	Stakeholder participation is a corner stone for the formulation of mineral policy in a sustainable manner. The example of Chile and Peru, who consulted major stakeholders to dowel upon progressive mineral policy framework, is a clear indication that this aspect should never be overlooked. The Canadian Whitehorse Mining Initiative is a classic example of incorporating stakeholders into formulation of a progressive mineral policy. [199]	• There is a need to incorporate all the stakeholders in the mineral policy development process so that directions are set for international investors. • This should be done in an institutional way by creating a **stakeholder consultation body** under the new Ministry of Mineral Development. • This will facilitate addressing issues like confidence building for international companies, addressing political and civil unstable and volatile atmosphere, developing measurable atmosphere with defined deliverables for a mineral policy, and formulating the guidelines for interaction between provincial and federal governments for implementation of mineral policy. • The stakeholder consultation body should incorporate the major stakeholders identified in chapter six of this research.	Ministry of Petroleum and Natural Resources.
	• **Public Information.**	Transparency is critical for ensuring trust among stakeholders. Public information cells have been established by mineral developed countries to keep the people informed.	Ministry of Petroleum and Mineral Resources should run media campaigns for public information. Media training on mining will be useful in this regard which can further educate public regarding this important aspect.	Ministry of Petroleum and Mineral Resources and Ministry of Information and Media Development
	• **Worker protection body**	Mine workers unions are strong internationally and they demand salaries and benefits for workers that are in line with the risk	• The Ministry of Mineral Development should encourage the establishment of a mine workers union to ensure rights and health-related standards are enforced. • The mining industry should train its personnel and take the necessary	Ministry of Petroleum and Natural Resources and

[198] Reko Diq conflict with Tethyan company is a classic example of how much important is the conflict resolution in mineral sector.

[199] As a result of the above, the mining association of Canada brought various stakeholders together to create a mineral policy that would address the concerns of all the stakeholders. This idea was agreed upon by all and the initiative was named as Whitehorse Mining Initiative (Natural Resources Canada, 1999). The Whitehorse Mining Initiative involved representatives from industry, government, labour unions, local community, and the environmental protection bodies. The process started in February 1993 and ended in September 1994, and the recommendations of the process formed the basis of the 1996 Minerals and Metals Policy of the Government of Canada. The initiative saw the Canadian mining industry to contribute positively towards national GDP growth and beneficiation of minerals in the last decade.

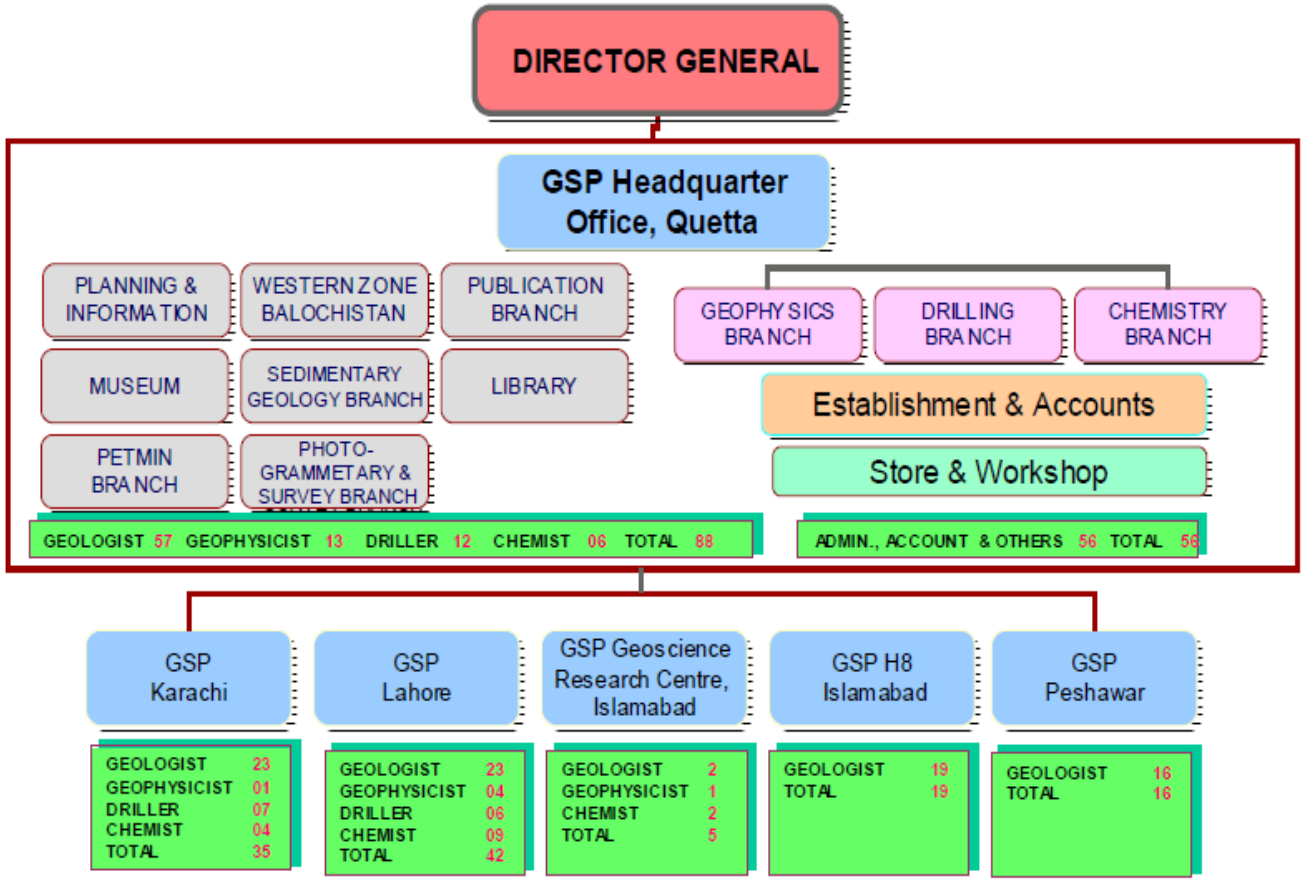
		associated with working in a mine. The example of South African mine unions, where they called a strike to demand better wages and welfare projects, is what unions are capable of doing. The example of Brazil is also pertinent here[200].	actions to ensure their safety. • Appropriate qualifications are required to ensure competence, health and safety in mines.	Ministry of Education
5	**Mining Cadastre System and GIS Database**	An up to date Mining Cadastre System and mineral geodatabase is essential	• Geological Survey of Pakistan should be brought under the control of Ministry of Mineral Development (Figure 8.4). • A new Mining Cadastre wing should be established under Geological Survey of Pakistan (GSP), which should be given the task to develop Mining Cadastre for Pakistan. • A mineral GIS database wing should also be established under the Geological Survey of Pakistan (GSP), to develop and update the mineral geodatabase for mineral resources of Pakistan. • The complete design and implementation details are given in section 9.5 above.	Ministry of Mineral Development and Geological Survey of Pakistan (GSP)

Source: Updated
SNL Metals Economic Group, 2014.
Ministry of Petroleum and Natural Resources of Pakistan, 2013
Geological Survey of Pakistan, 2013
Government of Pakistan, 2014
Ministry of Finance, Government of Pakistan, 2014
The World Bank, 2014
The World Economic Forum, 2014
SNL Metals Economic Group, 2014.
United States Geological Survey, 2014.
Foreign Investment Committee Republic of Chile, 1993
The World Bank, 2015
International Monetary Fund, 2015
Ministry of Mines and Energy, Brazil, 2015

[200] In 2010, a total of 165,000 workers were employed by the mining industry in Brazil. This is an employment ratio of 1: 13 in the mining industry – for each position created in the mining industry, another 13 jobs were created.

Appendix E

Current Organisational structure of Geological Survey of Pakistan (GSP)



Source: Geological Survey of Pakistan, 2013

Appendix F

Implementation plan for political economy and infrastructure development framework for Mineral Policy Development of Pakistan.

<table>
<tr><th>Category</th><th>Description</th><th colspan="4">International best practice</th><th>Pakistan's Current practice</th><th>Gap</th><th>Implementation - Measure leading to best practice</th></tr>
<tr><td rowspan="2">Political dispensation and form of governance</td><td>Democracy</td><td colspan="4">Democratic with Presidential form of government</td><td>Democratic with Parliamentary form of government [201]</td><td>Apparently there is no gap in this category but history of Pakistan indicates that the parliamentary form of government has never been stable and more importantly lacked behind economically from its counterpart of the presidential form of government (Figure 7.2).</td><td>• Pakistan should remodel its political system in a way that it provides the much-needed stability to the system. Military governments[202] are not the way forward in the twenty-first century (Military governments have always been able to provide economic stability in the country. The best era for Pakistan's economy is 1977-85, when General Zia Ul Haq ruled the country through a martial law (Table 7.1 and Figure 7.2). Pakistan should evolve a system of governance that strengthens the political institutions. This can be done with the creation of checks and balances in the system and a constitutional role for the Army to avoid frequent disruption of democracy due to poor governance.
• Pakistan should look at the possibility to restructure its constitution on the basis of the presidential form of government (with checks and balances embedded in the constitution) which will combine the power centres into one institution and will bring the stability in the political system that is required for foreign investments[203].</td></tr>
<tr><td>Frequency of elections</td><td>Range</td><td>Average</td><td>Standard deviation</td><td>5 years</td><td>• No gap as our period for governance is also five years.
• History tells us that the political governments were never allowed to complete their respective turn of governance. (Table 7.1 and Figure</td><td>Pakistan should have a period of governance of 5/6 years in the democratic form of government so that there is continuity in the policies which will provide confidence to the foreign investors.</td></tr>
<tr><td></td><td>4 - 7 years</td><td>5.1 years</td><td>0.9 years</td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Internationally the period of governance is 4/5 years.</td><td></td><td></td><td></td></tr>
</table>

[201] A constitutional democracy, operating in a parliamentary system.
[202] Pakistan's experience with democracy has always been transitory, as brief democratic rules have followed prolonged military regimes.
[203] A well thought out national debate needs to be initiated on this issue as there are trust deficit in different institutions of the country.

						7.2)	
Economics for national benefits	Type of economy	Free market economy			Free market economy with a blend of Islamic laws	Pakistan's economy is a blend of free market and the Islamic economic rules and regulations which are not clearly defined.	• Pakistan should become a free market economy with clear rules and regulations defined for Islamic banking system. • The clear picture of the 10% versus 90% of Islamic and conventional banking respectively needs to be advertised through a rigorous international media campaign. • Pakistan should develop Gwadar into a communication and economic hub of the World by speedy completion of China Pakistan Economic Corridor (CPEC). (Figure 8.6) • Pakistan should make a new mineral policy which is in line with the international best practice to give the much-required boost to the fragile economy.
	GDP	202.3 billion US$-2246 billion US$	908.5 billion US$	752.074 billion US$	245 billion US$	GDP is below the average but it's within the allowable standard deviation for the selected countries. There is a gap of 663.5 billion US$ (908.5 billion US$ - 245 billion US$).	• Pakistan should take steps for a steady growth in the GDP, which will attract foreign investment. • Pakistan should enhance its tax network by strong institutional strengthening measures in CBR (Central Beau rue of Revenue)[204]. • The Chinese investments in CPEC can lift FY 16-18 annual GDP growth beyond 6% through direct impact. • The four main areas of cooperation from the CPEC are transport, infrastructure, energy and industrial cooperation. The route of the corridor will pass from the KPK and the Baluchistan province and massive works should target Pakistan's road system, in particular, the second phase of the 1,300-km Karakoram highway, a six-lane high-speed motorway running along the ancient Silk Road from Xinjiang into the province of KPK and Baluchistan (Figure 8.6). This will create job opportunities and will lower the poverty level of the country.
	Annual GDP growth	1.1 - 6 %	3.8 %	1.7 %	3.6%	GDP growth rate is in line with selected developing countries; however there is still room for improvement and it should ideally be in the range of 5-6 % annually.	
	Tax revenue/GDP	10.3 – 34.4 %	23.3 %	7.3 %	11.9%	The tax revenue/ GDP is below the allowable standard deviation.	
	Unemployment	5.2 – 24.9 %	9.5 %	6.1 %	6.2%	Unemployment is below the average but it is one of the areas where Pakistan has performed well.	
	Poverty[205]	8.2 – 51.3 %	28 %	14.9 %	22.3%	Poverty is below the average but it's within the allowable standard deviation for the selected countries.	

[204] This is being regularly highlighted by the international monitory Fund (IMF) to Pakistan to enhance its tax base and bring more people into tax network. This will increase the government revenue and thus subsequently reduced its borrowing.
[205] Population below international poverty line.

Others	Infrastructure development	15.1 – 66.5	45.6	13.8	118	Infrastructure rating[206] for Pakistan is below average and it is far down than the standard deviation for the selected countries. Infrastructure plays a pivotal role in attracting foreign investment.	• Pakistan has got a bright chance of enhancing its infrastructure as the whole investment theme of CPEC (China-Pakistan Economic Corridor) revolves around improving the transportation network. • The transport infrastructure (roads, rail and port infrastructure) should be improved to lure in the foreign investors. The transport improvement is part of the investment plan of the CPEC (22% of total investment). • The CPEC will connect the Chinese city of Kashgar in Xinjiang Province to Gwadar through a 2000 km road network. Importantly this entire infrastructure will pass close to the mineral rich areas of Pakistan thus making it more attractive for the foreign investors (Figure 8.6). • Approximately 80% of Pakistan's mineral reserves are located on the western border and the western CPEC route ideally runs through all of these resources. This will attract considerable foreign investment as the communication infrastructure will be uplifted by completion of the western route of CPEC (Figure 8.6). • Reko diq reserves (6,000 m tonnes of copper and 1656 m tonnes of gold) and Saindak reserves (618 m tonnes of silver and 1400 m tonnes of iron) can be joined with the CPEC at Mastung by RCD highway (Already available) OR A new 300 Km road can be constructed to join RCD highway with CPEC at Khuzdar (Figure 8.6). • Thar coal reserves (186 billion tonnes) can be joined with existing National highway to Karachi at Hyderabad by improving the existing road network. • Both these new highways should be made part of the CPEC officially to catch the eye of the world. This will make the foreign investors interested in investing in mineral resources these roads are linking.
	Estimated population	-0.4 - 1.3 %	0.9 %	0.5 %	1.7 %	Population growth rate is very high and is above the allowable standard	Pakistan should lower its population growth rate to be able to control the unemployment and poverty.

[206] Infrastructure ratings are the average ratings of transport, electricity & telephony, information, communication and technology, education, health, security, and public institutions.

	growth					deviation limit of the selected countries. The growth rate is exponential and needs to be controlled for prosperity and economic growth.	

Source: Updated (Derived and extracted from Table 5.1)

SNL Metals Economic Group, 2014.
Ministry of Petroleum and Natural Resources of Pakistan, 2013
Geological Survey of Pakistan, 2013
Government of Pakistan, 2014
Ministry of Finance, Government of Pakistan, 2014
The World Bank, 2014
The World Economic Forum, 2014
SNL Metals Economic Group, 2014.
United States Geological Survey, 2014.
Foreign Investment Committee Republic of Chile, 1993
The World Bank, 2015
International Monetary Fund, 2015
Ministry of Mines and Energy, Brazil, 2015

Appendix G

Implementation plan for legal and regulatory framework for mineral policy development of Pakistan.

Description	Pakistan	Best Practice	Implementation - Measure leading to best practice
Mineral policy	There is one National Mineral Policy and four different provincial mining concessions which creates confusion in legal framework of the country. • Federal: National Mineral Policy 2012 • Punjab: National mineral policy 2012 and Punjab Mining Concession Rules, 2002 • Sindh: National mineral policy 2012 and Sindh Mining Concession Rules, 2002 • KPK: KPK Mineral policy 2014. • Baluchistan: National Mineral Policy and Baluchistan Mineral Rules 2002	Mineral policy and mining concession rules at federal level	• There should be one mineral policy which should cover all aspects of the mining operations. • The promotion of investment in the mining sector should be declared as national interest and top priority. • The example of Mexico which has 31 States and a Federal district, which constitute its administrative divisions. Each State is considered a sovereign entity and is free to make its own constitution, with which it can govern its relations with other Mexican states but not with other countries[207]. Although every state is sovereign but they are governed by only one mining law and minerals are the sole property of the state. • None of the eight countries[208] evaluated in this thesis have separate Provincial/ State mineral policies, neither the minerals are the property of the Provinces. We need to shift this policy paradigm to be in line with the international best practice of being governed by only one mineral policy. • The example of South Africa where, in the pre-1994 South Africa, minerals were considered as the property of the owner of the land. In an effort to bring about equitable reform and to compete in the international market, the *Mineral and Petroleum Resources Development Act, 28 of 2002 [MPRDA]* was promulgated in 2004, which gave the state the exclusive rights over the minerals in South Africa. • As a worst case scenario, if we allow Provinces to have their separate policy then it should not conflict with National Mineral Policy so that there is uniqueness in the policy as a whole.
Legislation	• Article 141, 142 & 172 of the constitution of Islamic republic of Pakistan, 1973 • Minerals and mining is covered	Protected under the article of constitution	• Pakistan should revisit its mineral legislation by organising a national debate in the media and the parliament. We should bring the legislation in line with international best practice to win the confidence of the foreign and local investor. • Pakistan should declare the promotion of investment in the mining sector as

[207] All mining activities in Mexico are regulated by the *Mexican Mining Law of 1992*. The 1992 Mining Law defines all minerals in Mexico to be the property of the State. Private parties may develop these minerals (except oil and nuclear fuel minerals) through a concession granted by the Federal government

[208] In India the Central Government and the State Governments are both responsible for the management of mineral resources in terms of the *Seventh Schedule of the Constitution of India*. However, all the states follow the same mineral policy and are operated by the *Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)*, which lays down the legal framework for the regulation of mines and development of all minerals in India.

	under article of constitution but this provision is superseded by the 18th amendment in the constitution where all powers were relegated to the provinces.		national interest and top priority. All these amendments should be consolidated into a single document and given a constitutional cover.
Legal framework	• Provincial governments/federating units are responsible for regulation, detailed exploration, mineral development and safety concerns in these operations, whereas geological/geophysical survey and mapping, national and international coordination and formulation of national policies and plans are federal responsibilities • 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 mineral resources.	The mining law is based on the overall constitution and sets out from other laws which augment the mining law, like economic laws	• Pakistan's poor economic, regulatory and security perception is negatively affecting the direct foreign investment in the country. Pakistan should take extraordinary measures to restore the confidence of foreign investor in the mining sector. For this to happen, we need to introduce a law on the foreign Investment, which should provide special guarantees between the foreign investors and the Pakistani State. This law should ensure free repatriation of profits and capital, tax stability and non-discrimination against foreign investors[209]. • The important items that should be included in this new law are; definition of the status of mineral rights; functions and management of the Mining Cadastre; elimination of the discriminatory laws between national and foreign investments; and flexible foreign exchange rate policies. • The most important are the continuity of these reforms which will ensure the strengthening of the mining industry and its confidence with the investors.
Mineral ownership	Nuclear minerals and those found in the territory under control of the federal government are the ownership of the federal government, while all other mineral resources are under direct control of provincial governments.	State owned	• Mineral ownership in all selected countries rests with the State except India where the ownership is divided between State and Provincial Governments. • Pakistan system of ownership where all minerals except nuclear minerals are the ownership of Provinces is not in line with the best practice of the selected countries. • Pakistan should deliberate on this in parliament with all parliamentary parties to come with amendment in the constitution whereby the minerals should be brought into the control of the State. • However, this amendment should not be done at the cost of inter-Provincial
Level of ownership	Federal and provincial governments.	Federal Government	

[209] Chilean government introduced the *Foreign Investment Statute* (Decree-Law 600), for guarantees between the foreign investors and the Chilean State. This law ensured free repatriation of profits and capital, tax stability and non-discrimination against foreign investors (Foreign Investment Committee Republic of Chile, 1993). The Chilean economic model was based on three basic principles, free market economy; respect of property rights; and supporting role of the state.

			harmony, in which case a method should be device where the investor should feel guaranteed in mineral ownership.
Security of tenure	No specific provision for security of tenure in National Mineral Policy 2012 and Provincial Mineral Policies.	Protected in legal framework through an act	• Pakistan needs to implement a strong security of tenure regime to build the confidence of the foreign investors. • The Mining Law should provide the provision that the owner of the mining property has the right to protect these rights whether against another individual or against the State itself. • The mining concessions grant should be made through an administrative act (mining lease) published in the Official Gazette of Pakistan. • The role of the judiciary should be included in the mining concession contracts which will provide sufficient security of tenure to the investor.
Rights registry	(1) At federal level provided by REGISTERED No. L7532. (2) None of the four provinces provides for the establishment and rigorous maintenance of a registry of applications filed for mineral titles.	Title registration office	• Pakistan should reorganise the title registration office and it should be made responsible to record each and every concession to explore or of a mining claim in accordance with the international best practice. • The establishment of Mining Cadastre System is very important and urgent as it provides easy information to the investors. • A new Mining Cadastre organisation under the geological survey of Pakistan should be established and it should develop a GIS database of all the mining operations in the country. • This GIS information should be made available on the internet free to access for everyone so that the investor have a fair idea of the mining operations being run in the country. • The rights registry and Mining Cadastre System should be ideally under one roof for better coordination and ease of access by the investors.
Environmental provision	• Protected in the National Mineral Policy 2012 but no mention of specific actions like filing of Environmental Impact Statement. No compulsion of verification of environmental permits, licences and authorizations. • The national mineral policy provides following environmental provisions:- ➢ Periodic reports detailing the measures taken by respective	Protected in legal framework through an act Filing of Environmental Impact Statement Verification of environmental permits, licences and authorizations	• A lot needs to be done in the area of environmental protection. • *The Pakistan Environmental Protection Act 1997* does not provide any specific clause for the mining sector. The *Pakistan Environmental Protection Agency* does not have the jurisdiction to operate in the mining sector. • Pakistan should consider an amendment to the *Pakistan Environmental Protection Act 1997* whereby, the new legislation should protect the environment and the property owner (operator) to meet certain requirements and to accept certain responsibilities. • These should be initiated from the inception of prospecting a property when an Environmental Impact Statement must be filed (and approved). Subsequently, as the project proceeds towards production and installation of plants, Environmental

	company for compliance with environmental requirements; ➢ Take measures to prevent damage to the environment, and where some adverse impact on the environment is unavoidable, take measures to minimize such impact; and ➢ Make good, any damage caused to the environment, as far as possible, during the course of exploration or mining operations and on the cessation of such operations due to expiry, or cancellation of the mineral title.		Impact studies along with guarantees and controls must be filed and approved[210][211]. • All activities should be subjected to mandatory environmental licensing by the *Pakistan Environmental Protection Agency*, depending on the extension of the potential environmental impact. Environmental licenses shall be granted prior to the construction, installation, expansion or operation of the mining activity. As a general rule, for the issuance of the Preliminary License, a previous Environmental Impact Study – EIA and a corresponding Environmental Impact Report – RIMA should be made mandatory[212]. • The establishment of an *Environmental Evaluation Agency* under the *Pakistan Environmental Protection Agency*, which should monitor environmental compliance[213]. • It should have the authority to carry out unexpected audits and levy fines on mining companies if they fail to comply with prescribed environmental standards.
Foreign Investment incentive law	No law exits	Clear foreign investment laws and incentives are promulgated by international mineral industry[214].	• Ministry of Finance and Revenue must develop clear policies and protocols for foreign investments. • A separate committee should be formulated under Ministry of Finance and Revenue and Ministry of Mineral Development (MMD) to promulgate changes in the existing foreign investment procedures in the country. • A clear law on foreign investment incentives (Like the Decree Law of Chile) should be legislated to attract foreign investment in the mineral sector.
		Statistical analysis Range | Average | SD	

[210] Article 10 No. 1, Environmental Law of Chile provides the protection of the environment and the property owner (operator) is to meet certain requirements and to accept certain responsibilities.

[211] The Ministry of Environmental Protection of the Republic of Kazakhstan ("MEP") is the principal state authority for environmental protection. It issues environmental permits and licenses, and establishes limits for environmental emissions among other things.

[212] Brazilian Federal Law No. 6,938/81, that establishes the National Policy of Environmental Protection and Resolution No. 237/97 issued by the Federal Environmental Council – CONAMA. According to this law all activities are subject to mandatory environmental licensing by the Federal or State Environmental Agency.

[213] The Environmental Evaluation and Oversight Agency, ("OEFA") of Peruvian government monitors environmental compliance. OEFA has the authority to carry out unexpected audits and levy fines on mining companies if they fail to comply with prescribed environmental standards.

[214] Decree Law (DL) 600 is a mechanism for the entry of capital into Chile. Under this regime, whose use is optional, foreign investors bringing capital, physical goods or other forms of investment into Chile may ask to sign a foreign investment contract with the State of Chile. Since 1974, the majority of foreign investors have chosen to use this mechanism. By 2011, foreign investment worth almost US$82.0 billion had been materialized through D.L. 600, representing 56.5% of the foreign capital effectively entering Chile during that period.

Exploration fee		• Exploration fee in Pakistan is 2.4 US$ per Km² higher than the limit of standard deviation of the selected countries. • 10% area of Reconnaissance license and not exceeding 1000 Km².	0.076 US$ per Km²	0.032 US$ per Km²	0.042 US$ per Km²	• Pakistan should lower its exploration fee below the international best practice to attract foreign investors. • It should be ideally brought down to 0.01 US$ per Km²[215] which provides an incentive to the local and foreign investors. • The exploration fee should be adjusted to an increasing scale[216][217].
Licence fee		(1) 50 US$; one-off payment at the start of operations. (2) Rs. 3/- (Rupees three only[218]) per acre per annum (0.00012 US$ per Km²). The fee shall be enhanced by 50% over the last fee paid each time the license renewed. The fee shall be paid in advance for each year of renewal of prospecting license.	1.11 US$ per Km²	0.64 US$ per Km²	0.75 US$ per Km²	• The licence fee in Pakistan is within the standard deviation limit of all selected countries and should be kept as they are. • However to get the attention of the international mining companies and foreign investors, it should be based on a yearly decreasing scale[219].
Award of concession		Ministry of Petroleum and Natural Resources at Federal level and Ministry of Mines and Minerals at provincial level.	Legal proceedings On merit decision Through a unilateral administrative act First come first serve basis			• No legal proceedings which are a confidence building measure for foreign investors. The award of concession procedure is confusing as there are separate entities at Federal and Provincial level. • To make it consistent and corruption free Pakistan should ideally adopt the Chilean model where mining concessions are awarded in a non-contentious legal proceeding[220].
Exploration concession	Size	Divided into four types of Concessions: (1) <u>Reconnaissance permission:</u> Size Different for different Provinces: Baluchistan: 10,000 Km²	-	-	-	• There are four concession titles with varying parameters which create confusion. These are not in line with the best practice of only two types of titles. • Pakistan should adopt the Chilean model where a minimum of 100 hectares and a maximum of 5,000 hectares for each concession are awarded, and only one concession request is allowed.

[215] Average exploration fee for the eight selected countries in this thesis.
[216] As being done in Mexico where the exploration fee is 0.0039 USD per Km² for the first year and then periodically increases every year.
[217] In Brazil the rate is 0.0119 USD per Km² for first term and 0.018 per Km² during the period of renewal of the licence.
[218] Equals to 0.03 USD per acre per annum (exchange rate @ 1 Pak Rupee = 0.01 USD on 13/9/2015)
[219] In the case of Brazil, 1.19 USD per hectare for first term and 1.80 USD per hectare during the period of renewal of the licence are applied.
[220] Mining concessions are awarded in a non-contentious legal proceeding, and can be of two types: exploration concessions and exploitation concessions.

	Duration	Punjab: 5,000 Km² Sindh: 100 aq. Km Duration 12 months (2) <u>Prospecting rights:</u> Size	48 years	4 years	1.87 years	• The first period should be for two years and the second one for an additional two years (which must be solicited). The second period should be granted when 50% of the initial area is abandoned. • The mining concession should be granted for a minimum of 1 hectare and the maximum is 10 hectares, and applicants should be allowed to request a group of concessions together up to 1,000 hectares. • The mining concessions should be granted for a period till the mineral deposit is exhausted.
Mining concession	Size	Area not exceeding 1,000 Km² Duration 36 months (3) <u>Retention permit:</u> Size	-	-	-	
	Duration	Area not exceeding 1,000 Km² Duration 36 months (4) <u>Mining rights:</u> Duration 30 years or the estimated life of the mine	20 years	36.7 years	11.5 years	

Sources: Updated
Ministry of Petroleum and Mineral Resources of Pakistan, 2013
Government of Pakistan, The constitution of Islamic Republic of Pakistan, 1973
The World Bank, 2014
The World Bank, 2015
International Monetary Fund, 2015
Geological Survey of Pakistan, 2013
Ministry of Finance, Government of Pakistan, 2014
The World Economic Forum, 2014
SNL Metals Economic Group, 2014.
United States Geological Survey, 2014.
Foreign Investment Committee Republic of Chile, 1993
Ministry of Mines and Energy, Brazil, 2015

Appendix H

Fiscal framework – International best practice and strategic fit for measures for Pakistan.

Description	Range[221]	Average[222]		Standard deviation		Pakistan		Measure leading to best practice
						Current	Suggested	
Royalty (On revenue)	0 – 20 %	Minimum limit	Maximum limit	Minimum limit	Maximum limit	1 – 10 %	↓ 6.5 %	• Although the royalty is within the range of selected eight countries, it is suggested to bring it down to 6.5 % for five years to attract international investment in the mining industry. • After five years the royalty tax should be progressive and should be charged on the operating income (taxable net income less operating expenses) of a mining producer at rates ranging from zero to 5 %.
		0.9 %	5.3%	1.3	6.4			
Corporate Income Tax	4 – 42.33[223] %	25.8 %		11.4		25 – 35 %	✓ 25 – 35 %	• Corporate income tax rate is within the range of selected eight countries and can be left unchanged in the interest of stability. However, it can be reduced to 15 % (4% lower range + 11% SD) as an incentive to foreign investors. • This rate should be flat and same for all types of investments not linked to the amount of investments.
Specific Mining Tax[224]	0.2 – 20 %	Minimum limit	Maximum limit	Minimum limit	Maximum limit	6 – 15 %	✓ 6 – 15 %	• Specific mining tax rate is also within the range of selected eight countries and can be left unchanged in the interest of stability. • Special mining incentives law should be made where Specific mining tax may not apply to foreign investors that had signed foreign investment contracts with the Pakistani government.
		9.1 %	15.6 %	9.5	5.6			
Special incentives						(1) Protection from Expropriation. (2) Repatriation of Capital & Profits allowed.		Following strategic measures should be taken to enhance the confidence of foreign investor:- • A new constitutional Act to sign a foreign investment contract with the firms that bring capital, physical goods and other forms of investment into the country. The regulation should include a

[221] Range is calculated between the minimum and maximum limit of the royalties for eight countries.
[222] Average is calculated separately for both minimum and maximum values of royalties.
[223] 42.33 % is the CIT for foreign companies in India.
[224] SMT is calculated from values of three countries, i.e. Chile, Mexico and India. Values are calculated separately for both minimum and maximum limits.

						(3)Mining operators will be allowed to insure their assets and risks with international insurance companies.	specific clause for the mining sector which grants investors a fixed corporate income tax rate for 10 years. • Budgetary incentives in the form of international standards tax regulations and access to capital sources through lines of credit should be offered to foreign investors. • Efficient processing of exploration and development claims. • Pakistan should provide constitutional cover through act of Parliament for following incentives:- ➢ Eliminate the distinction between foreign and national capital in the mining industry to encourage foreign investors. ➢ Free access, possession, and disposal of foreign currency. ➢ No enhancing of royalty on minerals during the period of contract with a mining company. ➢ Guarantees of the legal protection of investor's' activities in all parts of the territory of Pakistan. ➢ Guarantees for the protection of the investor's' rights during nationalization and requisitions. • Investors should be given a choice to conclude a tax law stability agreement with the government. • Provision of mining act to develop Special Economic Zone (SEZ) which is eligible for a tax holiday[225]. 50% less royalty by creating additional added-value by processing minerals in the country.

Source: Updated
The World Bank, 2014
The World Economic Forum, 2014
SNL Metals Economic Group, 2014.
United States Geological Survey, 2014.
International Development Research Centre, 2010
Metals Economics Group, 2013
U.S. Geological Survey, 2013
Ministry of Mines and Energy, Brazil, 2015
Ministry of Mines, Government of India, 2015
International Monetary Fund, 2015

[225] Special Economic Zones (SEZ) are already planned in the China Pakistan Economic Corridor (CPEC), these should be extended to the western parts of the country to include the mineral rich areas like Reko Diq, San Dek and North Western parts of KPK.

Appendix I

Sustainable development issues and implementation plan for their remedies.

S/No	Sustainable development issues	Implementation Plan	Responsible directorate
1	Integration of community, regional and national issues	• Integrating mines and mining into the local, regional and national fabrics; • Making socio-economic planning a formal part of the permitting process; • Addressing mining operation effects, interactions or local, regional and national dependencies, in initial documentation and in regular reporting; • Making consultation with affected stakeholders a requirement of the permitting process and at every stage of the mining cycle; • Making planning subject to review and approval for the original permit; and • Making the original permit subject to regular review and periodic revision to reflect new goals and changing conditions.	Sustainable Development Directorate (Directorate Mineral and Beneficiation Economics and Directorate Social Development)
2	Community health	• Including health considerations in the baseline socio- economic assessment required by mining entities during the permitting process; • Working with mining entities as well as with communities in the planning and priority setting for health services that the entities may have undertaken to provide; and • Leading with other stakeholders to gradually assume responsibility for this activity from mining entities so that when closure of the mine approaches the physical and human public health infrastructure can make the post-closure transition with a minimum of disruption.	Sustainable Development Directorate (Directorate Social Development)
3	Employment opportunities	• Socio-economic plans should be made part of the permitting process to optimize the employment of local community.	Sustainable Development Directorate (Directorate Social Development)
4	Respect of human rights and cultural heritage	• Domestic policies and laws should be made consistent with international law and norms. • Ensuring that high standards of conduct are observed by mining operations and requiring that mining corporations, in their permit applications and day-to-day operations, are knowledgeable of and act in ways consistent	Sustainable Development Directorate (Directorate Social Development)

		with national laws and international laws and norms.	
5	Occupational health and safety	• Ensuring that each company within its jurisdiction accepts corporate responsibility for occupational health and safety through an appropriate set of legal requirements, as well as through governmental monitoring, inspection and enforcement activities; • Ensuring that failures in occupational safety and health performance are effectively dealt with to prevent reoccurrence and are supported by a system of penalties up to and including the revocation of operating permits; and • Requiring entities to provide the education, training, equipment, and adequate system that will reduce hazards and minimize the risk of accidents, injury, and disease and create a safety conscious environment.	Inspectorate of Mine Health and Safety
6	Security issues	• Working with corporations to address issues that may give rise to security concerns before issuing permits or commencing operations. • Use of the tools and programmes of the socio-economic plan to resolve or reduce the potential for disputes. • Not issuing permits when a deposit to be mined is in an area of active armed conflict. This is particularly important in context of KPK and Baluchistan where Army should be involved in the licensing process to guarantee security of the local community and the mine operator.	Inspectorate of Mine Health and Safety
7	Avoiding and minimizing potential adverse effects to biodiversity	• Requiring that mining entities submit environmental management programmes and updates for approval, during the permitting process and whenever there are significant process or operational changes during the operating life of the mine; • Identifying, monitoring and addressing potential and actual risks and impacts to biodiversity throughout the mining cycle; and • Requiring that mining corporations conduct monitoring on a continuous basis based on national standards and the conditions of the operating permit, compile and submit performance assessments to government and publish regular reports that are readily accessible to the public.	Sustainable Development Directorate (Directorate of Environmental Protection)

8	Managing mining wastes	• Ensuring that structures such as waste dumps and tailing storage facilities are planned, designed, and operated such that geotechnical risks and environmental impacts are appropriately assessed and managed throughout the entire mine cycle and after mine closure; • Requiring that mining corporations design, operate and maintain mine waste structures according to internationally recognized standards; and • Requiring that mining corporations commission independent expert reviews and report to governments prior to development approval, when changes in design are proposed, and at regular intervals during the operating phase.	Sustainable Development Directorate (Directorate of Environmental Protection)
9	Management of water	• Having appropriate environmental management standards in place for the use of surface and ground water. These standards should be strictly monitored, and have appropriate penalties should they be compromised; • Requiring that mining corporations ensure that the quality and quantity of mine effluent streams discharged to the environment, including storm water, leach pad drainage, process effluents, and mine works drainage, are managed and treated to meet established effluent discharge guideline values; • Requiring that mining corporations ensure that water-leaching or percolating waste dumps, tailings storage areas and leach pads have equivalent protection; and • Requiring that mining corporations have in place practices and plans that minimize the likelihood of impacts beyond the mining site, particularly potential trans-boundary impacts.	Sustainable Development Directorate (Directorate of Environmental Protection)
10	Integrating informal ASM activities into the legal system	• Creating clear legal frameworks and regulatory mechanisms to facilitate the organisation of ASM, access to property rights and ensuing obligations for ASM; and • Providing technical support to build the capacity of government or other bodies tasked with regulating and supporting the sector.	Sustainable Development Directorate and Inspectorate of Land and Mineral Rights
11	Integrating informal ASM activities into the formal	• Improving savings in the artisanal mining community, establishing more acceptable forms of financing and encouraging responsible investment;	Sustainable Development Directorate (Directorate

	economic system	• Strengthening the appropriateness, viability and transparency of policies and systems for collection, management and reinvestment of ASM revenue; and • Encouraging initiatives for standards and certification of ASM.	Mineral and Beneficiation Economics**)**
12	Reducing the social and environmental impacts of ASM	• Providing technical training to improve productivity and to safeguard the environment; • Disseminating and enforcing regulations emphasizing on safeguarding water sources, reducing deforestation, and improving the management of mercury and other toxic substances when it is not possible to eliminate them. • Having a national programs that provide minimal standards of health and education to ASM workers and their families; and	Sustainable Development Directorate (Directorate of Environmental Protection)