Corporate Social Responsibility and the Gold Mining Industry: The Ghana Experience

Aimann Sadik
Montclair State University

Follow this and additional works at: https://digitalcommons.montclair.edu/etd

Part of the Environmental Sciences Commons

Recommended Citation
https://digitalcommons.montclair.edu/etd/30

This Dissertation is brought to you for free and open access by Montclair State University Digital Commons. It has been accepted for inclusion in Theses, Dissertations and Culminating Projects by an authorized administrator of Montclair State University Digital Commons. For more information, please contact digitalcommons@montclair.edu.
CORPORATE SOCIAL RESPONSIBILITY AND THE GOLD MINING INDUSTRY: 
THE GHANA EXPERIENCE

A DISSERTATION

Submitted to the Faculty of 
Montclair State University in partial fulfillment
of the requirements
for the degree of Doctor of Philosophy

by
AIMANN SADIK

Montclair State University
Upper Montclair, NJ
2012

Dissertation Chair: Robert Taylor, PhD
MONTCLAIR STATE UNIVERSITY
THE GRADUATE SCHOOL
DISSERTATION APPROVAL

We hereby approve the Dissertation

Corporate Social Responsibility and the Gold Mining

Industry: The Ghana Experience

of

Aimann Sadik

Candidate for the Degree:

Doctor of Philosophy

Department of Earth and Environmental Studies

Certified by:

Dr. Joan Ficke
Dean of The Graduate School

Date

12/21/12

Dissertation Committee:

Dr. Robert Taylor
Dr. Petra Tschakert
Dr. Chris Anderson
Dr. Chinnappa Jayachandra
Dr. Matthew Gorrill
ABSTRACT

CORPORATE SOCIAL RESPONSIBILITY AND THE GOLD MINING INDUSTRY: THE GHANA EXPERIENCE

by Aimann Sadik

In 2012, the price of gold is sky rocketing due to strong demand and tight supply. Investors have revived their interest in gold investments at the expense of financial assets such as bonds and equities because of the current financial market turbulence. In addition, the trend in price has been fuelled by the strategic reserve holdings decisions by the central banks of advanced western economies to halt the sale of their gold reserves while that of emerging markets are acquiring gold holdings to protect their wealth during a period of global financial crisis. The supply of gold has not responded to this rising demand. Recent gold mine production has relied on lower grade ores, which have a record of significant negative environmental and social impacts and intense resource use. The lower grade ores have increased mining risk and precipitated a major challenge to the global sustainability of gold mining. The Gold mining industry has responded by utilizing Corporate Social Responsibility (CSR) as a means to demonstrate its voluntary moral and ethical ways of sustainable mineral development. The West African gold rich nation of Ghana is also experiencing these growing trends in other mineral-rich countries. This research describes the operationalization and effectiveness of the gold industry’s CSR from the global to the local level. A content analysis of corporate public reports was used
to investigate the global level CSR practices of the top 10 global mining companies ranked according to their market capitalization. The study also examined the compatibility of the priorities of gold industry’s responsible gold mining themes with the concerns of local communities about responsible mineral development. At the local level, two content analyses were undertaken. The first was to study the public view of issues related to gold mining generated by 1,156 articles in both public and private newspapers available on the Ghanaweb database. The second content analysis investigates the new 2006 Minerals and Mining law of Ghana against the international best-practice standard for mineral investment and emerging best practices for sustainable mineral development. In addition, the contributions of one major gold mining company, Newmont Ghana Gold Limited NGGL programs/projects to sustainable development of the Ahafo mine local community was evaluated based on the seven questions to sustainability (7QS), a sustainable development measurement framework.

The results showed that, globally, mining companies were selective in their CSR disclosures, and they disclosed more qualitative information than quantitative information even though the latter is more objective and informative to stakeholders. Further, this work showed a divergence between the priorities of gold mining industry’s CSR themes and concerns of local communities about sustainable mineral development.

At the local level in Ghana, the content analysis of government-owned and privately-owned newspapers revealed 22 gold mining concerns of the five major
stakeholders (government, gold mining industry, unlicensed/unregistered miners, and non-governmental organizations (NGOs) and communities). The analysis also showed differences between public and private newspapers in their prioritization of mining sustainability issues and growth in public interest about gold mining. Moreover, the analysis of the 2006 Minerals and Mining law of Ghana showed its compatibility with the international best practice for mineral investment but appears significantly incompatible with a proposed sustainable mineral development model. Hence, the new 2006 Minerals and Mining law of Ghana weakens communities but strengthens investors. Finally, the analysis of CSR activities by NGGL showed that their programs fulfilled local community needs, but there is the need for the implementation of natural resource protection and economic empowerment programs/projects for the long-term contributions to the sustainable development of the Ahafo mine local community.
ACKNOWLEDGEMENT

Alhamdulillah! Alhamdulillah! Alhamdulillah! Praises and thanks to Allah for making this dream a reality. It was a long journey but the joy of arriving at the destination is everlasting. To my supervisors: Dr. Robert Taylor, Dr. Petra Tschakert, Dr. Chris Anderson, Dr. Chinnappa Jaychandra and Dr. Matthew Gorring, I thank you for creating an environment for continuous learning through guidance, critique and encouragement throughout this period. Your supervision was excellent but I have to admit that I may not have been able to incorporate all your valuable suggestions into this final document. Nevertheless, I did my best within this period! Moreover, I acknowledge the receipt of full-time scholarship from Montclair State University to pursue this study.

In addition, I appreciate the assistance from Dean Robert Prezant of College of Science and Mathematics to conduct preliminary field investigation in Ghana and attend a conference in Denver, Colorado. I wish to express special thanks to the staff of Earth and Environmental Studies Department who have impacted me with interdisciplinary knowledge that was valuable to this study. Moreover, I thank my colleagues in the PhD in Environmental Management program for their support and feedback while I was developing this research.

Finally, I thank my “Mrs”, Fawziya for her support and patient during this period. I pray that my kids: Gorkor, Mordor and Aiya will go beyond this achievement in future during my lifetime. Sincerely, I wished my parents: Haji Rakiya “Aiya” and Alhaji Sadik were alive to feel this final manuscript but Allah knows best.
DEDICATION

To my Dad, late Alhaji Sadik Hussein Toure alias “Pop”
TABLE OF CONTENTS

Content.............................................................................................................. iv
ACKNOWLEDGEMENT.......................................................................................... vii
DEDICATION........................................................................................................... viii
LIST OF TABLES................................................................................................... xvi
LIST OF FIGURES.................................................................................................. xix
LIST OF ABBREVIATIONS AND ACRONYMS......................................................xxi

Chapter 1: Introduction

1.1 General Background....................................................................................... 1
1.2 Research Objectives and Organization........................................................ 27
References............................................................................................................. 32

Chapter 2: Gold Mining and Corporate Social Responsibility

Abstract................................................................................................................. 42
2.1 Introduction...................................................................................................... 43
2.2 Global Development of Gold Mining.............................................................. 45
2.3 Types of Gold Mining Methods....................................................................... 48
   2.3.1 Underground Mining.............................................................................. 48
   2.3.2 Surface Mining....................................................................................... 50
Content

2.4 Types of Mining Companies........................................................................................................52
2.5 International Incentives for Gold Mining................................................................................55
2.6 Social Responsibility of the Top ten Gold Mining Firms- A Comparison............57
2.7 Methods....................................................................................................................................59
2.8 Results.....................................................................................................................................62
2.9 Discussion..................................................................................................................................70
2.10 Conclusion................................................................................................................................73
References.................................................................................................................................76

Chapter 3: Analysis of Codes and Initiatives of Responsible Gold Mining

Abstract........................................................................................................................................85
3.1 Introduction..............................................................................................................................87
3.2 Drivers of CSR Engagement and their Implications...............................................................88
3.3 Gold Mining Operations and Local Community Risk...........................................................92
3.4 Methods...................................................................................................................................95
3.5 Results.....................................................................................................................................97
3.6 Discussion...............................................................................................................................105
3.7 Conclusion...............................................................................................................................108
References.......................................................................................................................................110
Appendix 1: Responsible mining codes and initiatives.........................................................112
# Chapter 4: Gold Mining in Ghana

<table>
<thead>
<tr>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>115</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>117</td>
</tr>
<tr>
<td>4.2 The Ghana Gold Mining Sector and its Impacts</td>
<td>118</td>
</tr>
<tr>
<td>4.2.1 Geological and Metallogenic Setting</td>
<td>118</td>
</tr>
<tr>
<td>4.2.2 Types of Gold Mines</td>
<td>120</td>
</tr>
<tr>
<td>4.2.3 Economic Impacts</td>
<td>121</td>
</tr>
<tr>
<td>4.2.4 Environmental and Social Impacts</td>
<td>126</td>
</tr>
<tr>
<td>4.3 Theoretical and Conceptual Framework</td>
<td>132</td>
</tr>
<tr>
<td>4.4 News media Coverage of Events/Issues in Ghana</td>
<td>135</td>
</tr>
<tr>
<td>4.5 Methods</td>
<td>137</td>
</tr>
<tr>
<td>4.6 Results</td>
<td>138</td>
</tr>
<tr>
<td>4.6.1 Newspaper Types (Government-owned and Privately-owned) and Gold Mining Stakeholders</td>
<td>138</td>
</tr>
<tr>
<td>4.6.2 The Trends in Media Attention to the Gold Mining Stakeholder</td>
<td>142</td>
</tr>
<tr>
<td>4.6.3 Stakeholder Group Major Concerns Related to Gold Mining</td>
<td>143</td>
</tr>
<tr>
<td>4.6.4 The Public Views of the Key Issues Related to Gold Mining</td>
<td>152</td>
</tr>
<tr>
<td>4.7 Discussion</td>
<td>152</td>
</tr>
<tr>
<td>4.8 Conclusion</td>
<td>156</td>
</tr>
<tr>
<td>References</td>
<td>158</td>
</tr>
<tr>
<td>Appendix 2: Coding Methodologies</td>
<td>162</td>
</tr>
</tbody>
</table>
# Chapter 5: Public Response to Mining - The Role of Government Policy in Sustainable Gold Mining in Ghana

Abstract........................................................................................................................................... 165

5.1 Introduction ..................................................................................................................................... 167

5.2 Latin American Mining Law Model (LAMLM): An International Best Practice Standard for Investment................................................................. 169

5.2.1 Setting-Up Conditions for the Private Mineral Investment..................................................... 170

5.2.2 Incorporating Environmental Regulations in Mineral Investment Model.............................. 174

5.3 A Sustainable Mineral Development Model.................................................................................. 175

5.4 Mineral Sector Reforms and Economic Development of Ghana.............................................. 178

5.5 Comparative Overview of Minerals and Mining Laws: PNDCL 153, 1986 Versus Act 703, 2006......................................................................................................................... 184

5.5.1 Regulatory and Fiscal Regimes.................................................................................................... 184

5.5.2 Environmental Framework.......................................................................................................... 190

5.6 Methods......................................................................................................................................... 194

5.7 Results......................................................................................................................................... 195

5.7.1 Evaluation of Minerals and Mining Law of 2006 against the Latin American Mining Law Model (LAMLM), an International Best Practice for Investment........................................................................... 195

5.7.2 Evaluation of Minerals and Mining Law of 2006 against the Sustainable Mineral Development Model for Mineral Investment........................................ 200

xii
### Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8 Discussion</td>
<td>208</td>
</tr>
<tr>
<td>5.8.1 Assessment of the Moderate Compatibility between Mineral and</td>
<td>209</td>
</tr>
<tr>
<td>Mining Law of Ghana and the Sustainable Mineral Development Model for</td>
<td></td>
</tr>
<tr>
<td>Mineral Investment</td>
<td></td>
</tr>
<tr>
<td>5.8.2 Assessment of the Incompatibility between Mineral and Mining law</td>
<td>218</td>
</tr>
<tr>
<td>of Ghana and the Sustainable Mineral Development Model for Mineral</td>
<td></td>
</tr>
<tr>
<td>Investments</td>
<td></td>
</tr>
<tr>
<td>5.8.3 Assessment of the process of Drafting and Passing the 2006</td>
<td>220</td>
</tr>
<tr>
<td>Minerals and Mining Act</td>
<td></td>
</tr>
<tr>
<td>5.9 Conclusion</td>
<td>223</td>
</tr>
<tr>
<td>References</td>
<td>226</td>
</tr>
</tbody>
</table>

### Chapter 6: Private Responses to Mining-A Case Study of Newmont Ghana Gold Limited Foundation and Sustainable Gold Mining in Ghana

**Abstract** .............................................................................................................................. 231

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Introduction</td>
<td>233</td>
</tr>
<tr>
<td>6.2 Literature Review</td>
<td>235</td>
</tr>
<tr>
<td>6.2.1 Integrate Community Relations with Corporate Policy...............</td>
<td>235</td>
</tr>
<tr>
<td>6.2.2 Success of Community Consultation Process.............................</td>
<td>236</td>
</tr>
<tr>
<td>6.2.3 Outcomes of Ineffective Community Consultation Processes..........</td>
<td>239</td>
</tr>
<tr>
<td>6.2.4 Sustainability Assessment of CSR Program at the Community Level</td>
<td>240</td>
</tr>
<tr>
<td>6.3 Sustainability Strategies of Gold Mining Companies in Ghana........</td>
<td>241</td>
</tr>
<tr>
<td>6.4 Seven Questions to Sustainability (7QS) and Conceptual Model........</td>
<td>249</td>
</tr>
<tr>
<td>xiii</td>
<td></td>
</tr>
</tbody>
</table>
# Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.5 Newmont Ghana Gold Limited (NGGL) Projects</td>
<td>252</td>
</tr>
<tr>
<td>6.5.1 Background of Ahafo Project</td>
<td>254</td>
</tr>
<tr>
<td>6.5.2 Background of Akyem Project</td>
<td>256</td>
</tr>
<tr>
<td>6.5.3 Sustainability Strategies and Programs in the Project Community</td>
<td>257</td>
</tr>
<tr>
<td>6.5.4 Ahafo Social Responsibility Forum (ASRF) and Newmont Ahafo</td>
<td>261</td>
</tr>
<tr>
<td>Development Foundation</td>
<td></td>
</tr>
<tr>
<td>6.6 Achievements and Recognition of NGGL Sustainable Community</td>
<td>264</td>
</tr>
<tr>
<td>Development Practices</td>
<td></td>
</tr>
<tr>
<td>6.7 Methods</td>
<td>266</td>
</tr>
<tr>
<td>6.8 Results</td>
<td>267</td>
</tr>
<tr>
<td>6.8.1 Engagement</td>
<td>269</td>
</tr>
<tr>
<td>6.8.2 People</td>
<td>272</td>
</tr>
<tr>
<td>6.8.3 Environment (Natural Resources)</td>
<td>275</td>
</tr>
<tr>
<td>6.8.4 Economy</td>
<td>275</td>
</tr>
<tr>
<td>6.8.5 Traditional and Non-Market Activities</td>
<td>279</td>
</tr>
<tr>
<td>6.8.6 Institutions and Governance</td>
<td>279</td>
</tr>
<tr>
<td>6.8.7 Periodic Re-assessments</td>
<td>280</td>
</tr>
<tr>
<td>6.9 Discussion</td>
<td>282</td>
</tr>
<tr>
<td>6.10 Conclusion</td>
<td>289</td>
</tr>
<tr>
<td>References</td>
<td>293</td>
</tr>
<tr>
<td>Content</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Chapter 7: Conclusions</td>
<td></td>
</tr>
<tr>
<td>7.1 Introduction</td>
<td>299</td>
</tr>
<tr>
<td>7.2 Contributions of the Dissertation to the Literature</td>
<td>299</td>
</tr>
<tr>
<td>7.3 Limitations of the Dissertation</td>
<td>303</td>
</tr>
<tr>
<td>7.4 Policy Implications of the Findings from this Dissertation</td>
<td>306</td>
</tr>
<tr>
<td>7.5 Implications from the Dissertation for Future Research</td>
<td>308</td>
</tr>
<tr>
<td>References</td>
<td>310</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Tables</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1: Environmental and resource sustainability of gold mining</td>
<td>11</td>
</tr>
<tr>
<td>1-2: Historical mercury contaminations of the environment due to</td>
<td>13</td>
</tr>
<tr>
<td>gold mining</td>
<td></td>
</tr>
<tr>
<td>1-3: Historical cyanide contaminations of the environment due to</td>
<td>14</td>
</tr>
<tr>
<td>gold mining</td>
<td></td>
</tr>
<tr>
<td>1-4: Occupational and health impacts of underground gold mining</td>
<td>15</td>
</tr>
<tr>
<td>1-5: Occupational and health impacts of surface gold mining</td>
<td>17</td>
</tr>
<tr>
<td>2-1: Gold mining phases and related activities</td>
<td>49</td>
</tr>
<tr>
<td>2-2: Surface mining and underground mining environmental impacts</td>
<td>53</td>
</tr>
<tr>
<td>2-3: Selected characteristics of the top ten gold mining firms</td>
<td>60</td>
</tr>
<tr>
<td>2-4: Description of the CSR themes of the top ten gold mining firms</td>
<td>63</td>
</tr>
<tr>
<td>2-5: Levels of disclosure and corresponding weights</td>
<td>64</td>
</tr>
<tr>
<td>2-6: CSR themes present in the public disclosure documents of the top</td>
<td>66</td>
</tr>
<tr>
<td>ten gold mining firms</td>
<td></td>
</tr>
<tr>
<td>2-7: Corporate social responsibility themes disclosure levels</td>
<td>67</td>
</tr>
<tr>
<td>3-1: Descriptions of the five sectors of codes and initiatives</td>
<td>98</td>
</tr>
<tr>
<td>3-2: Description of the responsible gold mining (RGM) themes</td>
<td>99</td>
</tr>
<tr>
<td>3-3: Matrix of responsible mining themes presence in the codes and</td>
<td>100</td>
</tr>
<tr>
<td>initiatives of the various sectors</td>
<td></td>
</tr>
<tr>
<td>3-4: Strength of the RGM themes across the sectors codes and</td>
<td>102</td>
</tr>
<tr>
<td>initiative of the Mining industry</td>
<td></td>
</tr>
<tr>
<td>Tables</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>3-5: Newspaper articles related to mining communities concerns and expectations grouped by RGM themes</td>
<td>103</td>
</tr>
<tr>
<td>4-1: The contributions of large and small gold mining to the total gold export values and production</td>
<td>123</td>
</tr>
<tr>
<td>4-2: The contribution of mining to the national economy</td>
<td>125</td>
</tr>
<tr>
<td>4-3: The environmental impacts by corporate mining firms</td>
<td>128</td>
</tr>
<tr>
<td>4-4: Human rights and other violations of mining communities by corporate mining firms</td>
<td>129</td>
</tr>
<tr>
<td>4-5: The social impacts by corporate mining firms</td>
<td>130</td>
</tr>
<tr>
<td>4-6: Characteristics of the Ghanaian newspaper types</td>
<td>139</td>
</tr>
<tr>
<td>4-7: Description of gold mining stakeholder groups</td>
<td>140</td>
</tr>
<tr>
<td>4-8: Distributions of reporting on specific gold mining stakeholders by the privately-owned and government-owned newspapers types</td>
<td>141</td>
</tr>
<tr>
<td>4-9: A view of the overall pattern of media attention to gold mining by year</td>
<td>144</td>
</tr>
<tr>
<td>4-10: Categories of gold mining stakeholders concerns</td>
<td>145</td>
</tr>
<tr>
<td>5-1: Composition of the International best practice for mineral investment - the Latin America Mining Law Model (LAMLM)</td>
<td>171</td>
</tr>
<tr>
<td>5-2: Recent developments in mineral investment best practice areas</td>
<td>177</td>
</tr>
<tr>
<td>5-3: The impacts of economic reforms</td>
<td>181</td>
</tr>
<tr>
<td>5-4: A comparative overview of PNDCL 153 vrs Act 703</td>
<td>185</td>
</tr>
<tr>
<td>5-5: Comparisons of the fiscal and related provisions of the minerals and mining legislations of 1986 and 2006</td>
<td>188</td>
</tr>
<tr>
<td>5-6: Evaluation of the 2006 minerals and mining law of Ghana against the mineral investment best practice</td>
<td>197</td>
</tr>
</tbody>
</table>
Tables

5-7: Characteristics of sustainable mineral development model.......................... 201
5-8: Evaluation of the minerals and mining law of Ghana against the sustainable mineral development model................................................................. 204
5-9: Contribution of mining taxes to government revenue................................. 211
6-1: Themes and sub-themes of the seven questions of sustainability................. 251
6-2: Partnerships social responsibility projects of NGGL.................................. 259
6-3: Seven questions (7Qs) to sustainability assessment framework.................... 268
6-4: Profile of the NADeF within the context seven questions to sustainability (7QS)........................................................................................................... 270
6-5: Communities proposed projects and status................................................ 273
6-6: Scholarship awards to students from the various communities..................... 274
6-7: Utilizations of allocated funds in Gh Cedis (GH₵) for NADeF programs for the year 2009................................................................. 276
6-8: Utilizations of allocated funds in Gh Cedis (GH₵) for NADeF programs for the year 2010 for Asutifi district communities................................. 277
6-9: Utilizations of allocated funds in Gh Cedis (GH₵) for NADeF programs for the year 2010 for Tano North district communities................................. 278
6-10: Traditional and non-market activities approved projects........................... 281
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1: Components of global gold demand</td>
<td>3</td>
</tr>
<tr>
<td>1-2: Components of global gold supply</td>
<td>5</td>
</tr>
<tr>
<td>1-3: Global gold production (supply)</td>
<td>8</td>
</tr>
<tr>
<td>1-4: Decreasing global gold ore grades</td>
<td>9</td>
</tr>
<tr>
<td>2-1: The effect of leaching method of extraction on the global gold production</td>
<td>47</td>
</tr>
<tr>
<td>2-2: The level of detail of CSR themes disclosed by the firms</td>
<td>68</td>
</tr>
<tr>
<td>3-1: The level of importance of RGM themes to mining affected communities relative to that of corporate gold mining firms</td>
<td>104</td>
</tr>
<tr>
<td>4-1: Geology and gold mineralization of Ghana</td>
<td>119</td>
</tr>
<tr>
<td>4-2: Characteristics of the gold mining types in Ghana</td>
<td>122</td>
</tr>
<tr>
<td>4-3: Public perception of reality and the media-agenda setting model</td>
<td>133</td>
</tr>
<tr>
<td>4-4: Presumed public perception as shaped by media agenda setting</td>
<td>134</td>
</tr>
<tr>
<td>4-5: Distribution of gold mining themes to stakeholder groups</td>
<td>146</td>
</tr>
<tr>
<td>4-6: Government’s gold mining concerns</td>
<td>148</td>
</tr>
<tr>
<td>4-7: Unregistered Miner’s gold mining concerns</td>
<td>149</td>
</tr>
<tr>
<td>4-8: Industry (Gold mining firms) gold mining concerns</td>
<td>150</td>
</tr>
<tr>
<td>4-9: NGOs and Communities gold mining concerns</td>
<td>151</td>
</tr>
<tr>
<td>5-1: Impacts of economic policy, and minerals and mining law on gold Production trend</td>
<td>179</td>
</tr>
<tr>
<td>5-2: Administrative profile of EIA procedure in Ghana</td>
<td>193</td>
</tr>
<tr>
<td>Figures</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>5-3: Contribution of mining taxes to government revenue</td>
<td>212</td>
</tr>
<tr>
<td>5-4: Disbursement of gold mining royalty revenue in Ghana</td>
<td>214</td>
</tr>
<tr>
<td>5-5: Distribution of shares from mineral development fund</td>
<td>216</td>
</tr>
<tr>
<td>6-1: Ghana’s gold belts and the regional distribution of major gold mining Companies in Ghana</td>
<td>243</td>
</tr>
<tr>
<td>6-2: The seven questions to sustainability (7QS)</td>
<td>250</td>
</tr>
<tr>
<td>6-3: The analytical framework of the study</td>
<td>253</td>
</tr>
<tr>
<td>6-4: Newmont’s Ahafo North and South concession in the Brong Ahafo Region, Ghana</td>
<td>255</td>
</tr>
<tr>
<td>6-5: Newmont’s Akyem concession in the Eastern Region, Ghana</td>
<td>258</td>
</tr>
</tbody>
</table>
# LIST OF ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAGI</td>
<td>Ahafo Agro Business Growth Initiative</td>
</tr>
<tr>
<td>ADF</td>
<td>Akyem Development Foundation</td>
</tr>
<tr>
<td>AED</td>
<td>Adapt-a-Cluster</td>
</tr>
<tr>
<td>Akyem SRF</td>
<td>Akyem Social Responsibility Forum</td>
</tr>
<tr>
<td>ALBA</td>
<td>Ahafo Local Businesses Association</td>
</tr>
<tr>
<td>ALP</td>
<td>Alternative Livelihood Program</td>
</tr>
<tr>
<td>AMLC</td>
<td>Ahafo Mine Local Community</td>
</tr>
<tr>
<td>ASRF</td>
<td>Ahafo Social Responsibility Forum</td>
</tr>
<tr>
<td>BBOP</td>
<td>Business and Biodiversity Offsets Programs</td>
</tr>
<tr>
<td>BGL</td>
<td>Bogoso Gold Limited</td>
</tr>
<tr>
<td>BOT</td>
<td>Board of Trustee</td>
</tr>
<tr>
<td>BITS</td>
<td>Bilateral Investment Treaties</td>
</tr>
<tr>
<td>CEPIL</td>
<td>Center of Public Interest Law</td>
</tr>
<tr>
<td>CeSIS</td>
<td>Center for Social Impact Studies</td>
</tr>
<tr>
<td>CIDA</td>
<td>Canadian International Development Agency</td>
</tr>
<tr>
<td>CIPS</td>
<td>Chartered Institute of Purchasing and Supply</td>
</tr>
<tr>
<td>CSO</td>
<td>Civil Society organization</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>CRJP</td>
<td>Council for Responsible Jewellery Practices</td>
</tr>
<tr>
<td>DJSI</td>
<td>Dow Jones Sustainability World Index</td>
</tr>
<tr>
<td>DPCU</td>
<td>District Planning Coordinating Unit</td>
</tr>
<tr>
<td>EDC</td>
<td>Export Development Canada</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impacts Assessment</td>
</tr>
</tbody>
</table>
LIST OF ABBREVIATIONS AND ACRONYMS

EIS  Environmental Impacts Statements
EP   Environmental Permit
ERP  Economic Recovery Programme
ETF  Exchange-Traded Funds
FDI  Foreign Direct Investment
GAIT Government accountability Improves Trust
GTZ  German Technical Cooperation
GEPA Ghana Environmental Protection Agency
GMI  Global Mining Initiative
GH¢ Ghana Cedis
GSBPL Golden Star Bogoso/Prestea Ltd
HDSA Historically disadvantaged South Africans
ICMC International Cyanide Management Code
ICME International Council on Metals and the Environment
ICMM International Council on Mining and Metals
IFC  International Finance Corporation
ILO  International Labor Organization
IMF  International Monetary fund
LAMLM Latin American Mining Law Model
LEEP Livelihood Enhancement and Community Empowerment Program
LHD  Load Haul Dump
MAC  Mines and Communities
# LIST OF ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLGRDE</td>
<td>Ministry of Local Government, Rural Development and the Environment</td>
</tr>
<tr>
<td>MNE</td>
<td>Multi-national Enterprises</td>
</tr>
<tr>
<td>Moz</td>
<td>Million ounce</td>
</tr>
<tr>
<td>MYSA</td>
<td>Newmont Mining Corporation’s Minera Yanacocha</td>
</tr>
<tr>
<td>MMSD</td>
<td>Mining, Minerals and Sustainable Development</td>
</tr>
<tr>
<td>NADeF</td>
<td>Newmont Ahafo Development Foundation</td>
</tr>
<tr>
<td>NA</td>
<td>Negotiated Agreement</td>
</tr>
<tr>
<td>NCOM</td>
<td>Ghana National Coalition on Mining</td>
</tr>
<tr>
<td>NDPC</td>
<td>National Development Planning Commission</td>
</tr>
<tr>
<td>NGGL</td>
<td>Newmont Ghana Gold Limited</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental Organizations</td>
</tr>
<tr>
<td>OASL</td>
<td>Office of the administrator of stool lands</td>
</tr>
<tr>
<td>OICI</td>
<td>Opportunities Industrialization Center International</td>
</tr>
<tr>
<td>PAYE</td>
<td>Pay As You Earn</td>
</tr>
<tr>
<td>PMMC</td>
<td>Precious Mineral and Mining Corporation</td>
</tr>
<tr>
<td>RGM</td>
<td>Responsible Gold Mining</td>
</tr>
<tr>
<td>SAP</td>
<td>Structural Adjustment Program</td>
</tr>
<tr>
<td>SDC</td>
<td>Sustainable Development Committees</td>
</tr>
<tr>
<td>7QS</td>
<td>Seven Questions to Sustainability</td>
</tr>
<tr>
<td>SIF</td>
<td>Social Investment Fund</td>
</tr>
<tr>
<td>SEED</td>
<td>Sustainable Community Empowerment and Economic Development Program</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
</tr>
<tr>
<td>TNC</td>
<td>Transnational Corporation</td>
</tr>
<tr>
<td>UNHRC</td>
<td>United Nations Human Rights Commission</td>
</tr>
<tr>
<td>USAID</td>
<td>U.S. Agency for International Development</td>
</tr>
<tr>
<td>VAT</td>
<td>Value Added Tax</td>
</tr>
<tr>
<td>WACAM</td>
<td>Wassa Associations of Communities Affected by Mining</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WBCSD</td>
<td>World Business Council on Sustainable Development</td>
</tr>
<tr>
<td>WMC</td>
<td>Western Mining Corporation</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

1.1 General Background

Historically, gold has served as a global currency, a commodity, an investment and an object of beauty. During the developments of financial markets in the 1980s and 1990s, investors resorted to financial assets such as bonds and equities at the expense of gold (World Gold Council, 2010). However, the current financial market turbulences or the global economic uncertainties have shifted the interest of investors back to gold. Investors have acquired gold as a tactical asset to capitalize on its strong potential for continuous rise in price due to strong demand and tight supply in the gold market (World Gold Council, 2011). Moreover, investors have bought gold as a long-term or strategic asset to preserve their wealth due to its unique characteristics as a better portfolio performer that lowers risk while enhancing returns and effective storer of value against inflation and depreciation of the dollar (World Gold Council, 2010). Furthermore, gold has a long history as a safe haven asset in times of financial or geopolitical uncertainties since it does not carry credit risk and anyone’s liability (Levin, 2006). For example, investors will not suffer from investment risks such as nonpayment of coupons or redemptions acquired as bonds and loss of equities when a company runs out of business. In addition, unlike currency holdings, the value of gold is unaffected by economic policies and/or inflation of the issuing country and its 24-hour trading with wide range of buyers and investment channels make liquidity risk low (World Gold Council, 2010). The central banks of emerging markets are also making strategic decisions to boost their gold
reserve portfolios to lower risk on their foreign currency holdings while the European central banks halt the sale of their gold holdings in a period of financial crisis. These developments reflect in the current gold demand and supply.

The global demand for gold comes from three main sectors: jewelry, technology (industry and dental) and investment (gold bars and coins; Gold Exchange Traded Funds {ETFs}; and similar). The annual average total demand for gold was 3,569 tons from 2001 to 2010 with the following average percentage demand: jewelry sector, 68%; investments sector, 20%; and the remaining 12% from the technology sector (Figure 1-1). Even though the jewelry sector had the largest demand, its component of the total demand decreased continuously since the onset of the financial crisis in 2007. However, the investments in gold showed a general continuous rise from about 25% in 2004 to an average of 40% in the last 2 years; the technology sector maintained a near stable demand of about 11% (Figure 1-1). The strong investment demand especially for the last three years corresponds with the skyrocketing price of gold from about $700 in 2007 to $1,300 in 2010 due to the financial crisis (Figure 1-1). In a period of a healthy global economy and financial market (before 2007), jewelry and technology demand of gold followed the business cycle of strong consumer purchasing power at low gold price. This reversed during this time of global economic recessions (Baur and Mc Dermott, 2010) as the demand of gold for investment decreased at high gold price while consumer spending was weak as reflected by the huge falls in gold demand especially by the jewelry sector.
Figure 1-1: Components of global gold demand. Data Source: World gold council, 2010.
from 2007 to 2010 (Figure 1-1).

The supply of gold to match these demands was from the combination of newly mined gold, official sector sale (mobilization of central bank reserves) and recycling of above ground stocks. The annual average gold supply from 2002 to 2010 was 3,734 tons, 60% of which were newly mined products (net of producer de-hedging)\(^1\), 10% from net official sector sale and the remaining 30% from the recycling of fabricated products principally from the jewelry and electronic sector (Figure 1-2). Gold supply from mines remained the major contributor to the global gold supply from year 2002 to 2010, however, recycled gold and official sector sale added significant quantities of gold to the total supply (Figure 1-2) to allow for the current incremental gold demand (Figure 1-1). Nevertheless, the supply of gold from recycling increased while the contribution to supply from the official sale of gold decreased. From 2002 to 2007, net official sales averaged 527 tons representing 14% of the total supply, then in 2008, this central bank sales dropped by less than one half (256 tons of gold, 6.7% of the total supply), and then declined again to just 34 tons in 2009 (0.8% of the total supply). Furthermore, in 2010 the official sector switched from being net sellers to net buyers; they acquired 76 tons of gold (1.8% of total supplied), (Figure 1-2). This change in behavior by the official

\(^1\) De-hedging is a widespread practice in the mining sector when producers closed out hedge position. Hedging is a contract to sell gold (usually 10% of annual production) in the future at a forward fixed price arrangement regardless of whether the gold price in the future is higher or lower than the agreed upon contractual gold price (World Gold Council, 2010, Gold Price News, 2005; Al-Joundi, 2002). Gold producers engage in this practice to protect a portion of their cash flow in the event that the gold price dropped without warning to enable them still pay their operating expenses (Gold Price News, 2005).
Figure 1-2: Components of global gold supply. Data source: World gold council, 2010.
sector is due to the strategic reserve decisions by central banks of advanced economies of Western Europe and North America versus that of emerging markets, (Gold Demand Trends, 2010). The official sector has large holdings of gold that can contribute large amount of gold to the market in any particular year; however, they are not distributed equally among nations. The western economies gold holdings is about 40% of their external reserves as a legacy to gold standard\(^2\), and the rest are in foreign currencies but only 5% or less of developing countries external reserves are gold holdings (Gold Demand Trends, 2010; World Gold Council, 2010). The rapid economic growth of emerging market economies led to a significant increase in their foreign currency holdings. The central banks of the emerging market economies have diversified their currency holdings into gold to save their wealth in the current environment of a weak US dollar (Kovalyova, 2011). The purchase of gold by countries from the emerging markets has resulted in significant reduction in the supply of gold by the official sector (Figure 1-2). Prior to the financial crisis, several European central banks sold their gold holdings to diversify their external reserves in favor of foreign currency holdings but the sale declined in the past three years and on halt now (World Gold Council, 2010). For example, recently in September 2011, Russia, the world's eighth largest official holder of gold reserve raised its reserve to 841.13 tons and Colombia added 2.3 tons of gold to boost its reserves to 9.14 tons (Kovalyova, 2011). A trend of the absence of gold sale

---

\(^2\) Gold standard is a monetary system based on the convertibility into gold; paper money backed and interchangeable with gold (World Gold Council, 2010).
from central banks of developed economies and the acquisition of gold holdings by
countries from the emerging markets have the potential to continue (Leyland, 2010).

Essentially, gold, whether supplied from the underground stocks (new mine
productions) and above ground stocks (recycled gold and official sector sale) is primarily
a non-renewable resource by origin. The current strong demand for gold will significantly
affect this primary source of supply. Historically, the major gold producing regions
(USA, South Africa, and Canada) have shown remarkable increases in gold output
(Mudd, 2007) for the past 170 years (Figure 1-3). The new cyanide mining technology
/carbon-in-pulp, (Figure 1-3) and global rise in gold price have resulted in significant
gold output from China, Australia and rest of the world (non-traditional gold producing
regions) as productions from the major gold producing regions dwindles (Figure 1-3).
Globally, gold production has not responded to its growing demand and increasing prices
since the current sources of mine productions rely on lower grade ores from minor
discoveries (World Gold Council, 2010).

Historical records on global gold resources indicate a declining ore grade, thus the
amount of gold contained per ton of rock mined (Figure 1-4). In 1894, gold mines in
Brazil, Australia and South Africa were producing about 22g of gold per metric tons of
Figure 1-3: Global gold production (supply). Source: Mudd, 2007
Figure 1.4: Decreasing global gold ore grades. Source: Mudl, 2007
ore, this reduced to 10g of gold per metric ton of ore in 1954 for mines operating in Brazil, Australia, South Africa, Canada and USA. The gold ore grade further declined to about 5g of gold per metric tons of ore in 2010 for Australia, USA and Canada gold mines (Figure 1-4). These declines have significantly contributed to the current low gold production relative to the continuous skyrocketing gold price and tight demand (Uncommon Wisdom, 2009). Nevertheless, the high price of gold has encouraged more financial, geographical, geological and geopolitical risks challenging gold extraction projects in Middle East, Africa and former Soviet Union (Uncommon Wisdom, 2009) in order to take advantage of the soaring gold price (Figure 1-2). Moreover, the ore grade declines are indications that the relatively easy-to-reach, easier and cheaper processing gold supplies (high-grade ore) have been exhausted. Currently, gold supplies are primarily from hard-to-reach low-grade ores that require complex and expensive processing (Giurco, et al., 2010; Washington, 2009). In addition, the production of gold from the low-grade ores have record of significant negative environmental and social impacts (Giurco and Petrie, 2007; Norgate and Haque, 2010) and resource consumption.

Mining low-grade ores requires excavation of massive quantities of gold bearing rocks from extremely large open-pit surface and underground mines. Mercury and cyanide- bearing solutions used for the extraction of the gold pose significant environmental risk with historical records of contaminations via spills and leakages around the world (American Museum of Natural History, 2007). An empirical
**Table 1-1:** Environmental and resource sustainability of gold mining

<table>
<thead>
<tr>
<th>Resource Intensity (y)</th>
<th>High Grade Gold Mining (x): &gt; 6 g/t Au</th>
<th>Low Grade Gold Mining (x): &lt; 2g/t Au</th>
<th>Power Regression Equation</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Consumption per Gold Produced (KL/kg Au)</td>
<td>&lt; 201.21</td>
<td>&gt;372.78</td>
<td>(y = 550.08x^{-0.561})</td>
<td>0.1574</td>
</tr>
<tr>
<td>Cyanide Consumption per Gold Produced (Kg CN/kg Au)</td>
<td>&lt; 69.54</td>
<td>&gt; 181.35</td>
<td>(y = 332.03x^{-0.8725})</td>
<td>0.5468</td>
</tr>
<tr>
<td>(\text{CO}_2\text{e}) Consumption per Gold Produced (t(\text{CO}_2\text{e})/kg Au)</td>
<td>&lt; 7.11</td>
<td>&gt; 11.51</td>
<td>(y = 15.591x^{-0.437})</td>
<td>0.2248</td>
</tr>
<tr>
<td>Energy Consumption per Gold Produced (GJ/kg Au)</td>
<td>&lt; 94738.58</td>
<td>&gt; 128761.73</td>
<td>(y = 156266x^{-0.2793})</td>
<td>0.1493</td>
</tr>
</tbody>
</table>

**Source:** Extracted from Mudd, 2007
analysis of the environmental and resource sustainability with respect to gold grades revealed that the lower-grade gold extraction and processing methods are less sustainable relative to those for high-grade gold (Table 1-1). For example, the low-grade ore’s water consumption doubles the quantity consumed by high-grade ores thus >372.78 KL/kg Au and < 201.21 KL/kg Au respectively. Similar consumption ratios between high and low-grade ores were recorded for cyanide, energy and carbon dioxide emissions (Table 1-1).

Historically, gold mining has resulted in numerous negative health and environmental hazards (Tables 1-2, 1-3, 1-4 and 1-5). Globally, mercury and cyanide solution from gold mines have contaminated the environment and food sources of communities living in gold mining regions due to inefficient environmental management practices, leakages and spills (Tables 1-2 and 1-3). In addition, there are sufficient evidences of occupational and health hazards from gold mining extraction methods. Underground gold mining has led to the contraction of diseases such as malaria, silicosis, lung cancer and caused hearing loss, suffocation and death of gold miners across continents (Table 1-4). Surface gold mining has also affected the neurological and physiological developments of children in the gold mining communities in South America and hand tremors and fatigue in Australia (Table 1-5). Other gold mining impacts include disruption of river flows, degradation of land and forest resources, impacts on the livelihoods of communities near mines and disturbance of traditional lives of indigenous people at local, regional and global levels (Yakovleva, 2005). The global quest for sustainable development has resulted in opposition to gold mines developments and production disruptions to an operating mine due to these impacts outlined above.
Table 1-2: Historical mercury contaminations of the environment due to gold mining

<table>
<thead>
<tr>
<th>Country</th>
<th>Contamination</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>Madeira River Basin, located in a gold prospecting area: mercury levels in certain sediments were 1500 times higher than similar sediments from non-mining areas, and dissolved mercury concentrations in the water column were 17 times higher than average for rivers throughout the world</td>
<td>Malm et al., 1990, 1997, 1998</td>
</tr>
<tr>
<td></td>
<td>Madeira River Basin, located in a gold prospecting area: mercury concentration in sediments exceeded the local safety limit of 0.1 mgHg/kg dry weight (DW) by a factor of 25 and the safety level for fish muscle of 0.5 mg Hg/kg fresh weight (FW) muscle was exceeded by a factor of 10.</td>
<td>Lacher and Goldstein; 1997</td>
</tr>
<tr>
<td></td>
<td>Carmo stream, along which there was gold prospecting had mercury concentrations at levels more than the Brazilian allowable limit of 0.1 mg Hg/kg</td>
<td>Reuther, 1994</td>
</tr>
<tr>
<td></td>
<td>The Pantanal, one of the largest wetlands in the world had fishes with mercury levels of more than 0.5 mg Hg/kg FW muscle thus more than the current Brazilian and international (WHO) standard for fish consumed by humans</td>
<td>Reuther, 1994</td>
</tr>
<tr>
<td>Colombia</td>
<td>Fishermen and miners living in the Mina Santa Cruz marsh had mercury intoxication possibly from ingestion of mercury-contaminated fish</td>
<td>Olivero and Solano, 1998</td>
</tr>
<tr>
<td>Venezuela</td>
<td>Forest soils near active gold mines contained as much as 129.3 mg Hg/kg DW of mercury compared to 0.15–0.28 mg/kg from reference sites</td>
<td>Davies, 1997; De Lacerda and Salomons, 1998</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Mercury concentrations recorded in water at the Lake Victoria goldfields averaged 0.68 (0.01–6.8) μg/L versus 0.02–0.33 μg/L at an in land water reference site and 0.02–0.35 μg/L at a coastal water reference site.</td>
<td>Ikingura et al., 1997</td>
</tr>
<tr>
<td>Philippines</td>
<td>In sections of stream used for fishing and potable water supply, the surface water mercury concentrations for at least 14 km downstream exceeded the WHO international standard for drinking water (&lt;1 μg Hg/L) and the U.S. Environmental Protection Agency water quality criteria for the protection of aquatic life (&lt;2.1 μg/L)</td>
<td>Appleton et al., 1999</td>
</tr>
<tr>
<td>Canada</td>
<td>Mercury levels in mud and sediments at a mine site range from 100 to 250 mg/kg, well above the 0.4–2.0 μg/kg typically found in uncontaminated stream sediments</td>
<td>Nriagu and Wong, 1997</td>
</tr>
</tbody>
</table>
Table 1-3: Historical cyanide contaminations of the environment due to gold mining

<table>
<thead>
<tr>
<th>Country</th>
<th>Contamination</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>In Colorado, overflows of 760,000L NaCN-contaminated water from storage ponds into natural waterways killed all aquatic life along 28 km of the Alamosa River. About 7000 dead birds were recovered from cyanide extraction gold mine leach ponds in western U.S. between 1980 and 1989. In 1990, 40x10⁶L cyanide wastes from a gold mine spilled into the Lynches River in South Carolina, from a breached containment pond after heavy rains, killing an estimated 11,000 fish. Between 1980 and 1989, 519 mammals, mostly rodents (35%) and bats (34%), were found dead at cyanide extraction gold mine mill tailings and heap leach ponds in California, Nevada, and Arizona. In 1983, the drinking water supply of a Montana community was contaminated with 600,000 L cyanide-containing wastes from a gold mine tailings pond. Between 1986 and 1991, cyanide in heap leach solutions and mill tailings ponds at gold mines in Nevada alone killed at least 9500 birds, mammals, reptiles, and amphibians. Between 1983 and 1992, at least 1018 birds representing 47 species were killed when they drank cyanide-poisoned water from heap leach solution ponds at a gold mine in the Black Hills of South Dakota.</td>
<td>Alberswerth et al., 1989; Allen, 1990; Clark and Hothem, 1991; Greer, 1993; Da Rosa and Lyon, 1997; Clark and Hothem, 1991; Da Rosa and Lyon, 1997; Henny et al., 1994; Da Rosa and Lyon, 1997</td>
</tr>
<tr>
<td>Canada</td>
<td>mine effluents containing cyanide from a Canadian tailings pond released into a nearby creek killed more than 20,000 bird.</td>
<td>Leduc et al., 1982</td>
</tr>
<tr>
<td>Guyana</td>
<td>A dam failure resulted in the release of more than 3.310⁹L cyanide-containing goldmine wastes into the Essequibo River, the nation’s primary waterway, killing fish for about 80 km, and contaminating drinking and irrigation water.</td>
<td>Da Rosa and Lyon, 1997</td>
</tr>
<tr>
<td>Romania</td>
<td>In 2000, a dike holding millions of liters of cyanide-laced wastewater gave way at a gold extraction operation sending a waterborne plume into a stream that killed at least 200 tons of fish.</td>
<td>Koenig, 2000</td>
</tr>
</tbody>
</table>
### Table 1-4: Occupational and health impacts of underground gold mining

<table>
<thead>
<tr>
<th>Country</th>
<th>Health Risk Type</th>
<th>Information Source</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td>Silicosis (massive fibrosis of the lungs marked by shortness of breath that is caused by inhalation of silica dusts, usually SiO$_2$), and Pulmonary tuberculosis (PTB).</td>
<td>Historical record of gold miners from 1860s to the 1960s showed evidence of these diseases in suffered epidemic proportions</td>
<td>Kippen, 1995</td>
</tr>
<tr>
<td></td>
<td>Dengue fever (a mosquito-borne acute infectious viral disease characterized by headache, severe joint pain, and rash)</td>
<td>Larvae and pupae of dengue vector mosquito in flooded unused shaft of goldmines</td>
<td>Russell et al., 1996</td>
</tr>
<tr>
<td></td>
<td>Silicosis</td>
<td>2297 Gold miners examined in 1961, 1974, 1985 and 1993 showed records of silicosis</td>
<td>de Klerk and Musk, 1998</td>
</tr>
<tr>
<td></td>
<td>Silicosis</td>
<td>Three former gold miners who worked for 5-17 years showed asbestos-related pleural disease</td>
<td>Lee et al., 1999</td>
</tr>
<tr>
<td><strong>North America</strong></td>
<td>Mortality from carcinoma of the stomach</td>
<td>Significant increase of stomach cancer amongst gold miners after working for 15-19 years</td>
<td>Kusiak et al., 1993</td>
</tr>
<tr>
<td>(Canada)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>North America</strong></td>
<td>Higher frequencies of tuberculosis and silicosis excesses of arthritis, musculoskeletal diseases, skin diseases, diseases of autoimmune origin, and diseases of the blood and hematopoietic organs</td>
<td>Death certificates and radiographic surveys of 3328 miners who worked an average of 9 years between 1940 and 1965</td>
<td>Steenland and Brown, 1995a,b</td>
</tr>
<tr>
<td>(USA)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1-4: Continued

<table>
<thead>
<tr>
<th>Country</th>
<th>Health Risk Type</th>
<th>Information Source</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>South America (Brazil)</td>
<td>Malaria</td>
<td>Study about 600,000 cases of annual malaria cases reported in Brazil (the Amazonian gold mining areas make up 99% of the cases)</td>
<td>De Andrade et al., 1995</td>
</tr>
<tr>
<td>Africa</td>
<td>Lung cancers</td>
<td>Study of Zimbabwe goldmines for silica dust and arsenic exposure</td>
<td>Boffetta et al., 1994</td>
</tr>
<tr>
<td></td>
<td>Silicosis (leading to tuberculosis)</td>
<td>Study of 16,454 case histories of silicosis amongst South Africa miners between 1975-1991</td>
<td>Cowie, 1994</td>
</tr>
<tr>
<td></td>
<td>Noise-induced hearing loss</td>
<td>Study of the impact of noise pollution by gold mining company in central Ghana</td>
<td>Amedofu et al., 1996</td>
</tr>
<tr>
<td></td>
<td>Bacterial and viral diseases</td>
<td>Analysis for prevalence of leptospirosis and Ebola virus (both of which can cause lethal hemorrhagic fever amongst five gold-panning villages in northeastern Gabon</td>
<td>Bertherat et al., 1999</td>
</tr>
<tr>
<td></td>
<td>Suffocation and death</td>
<td>Study of death of seven miners due to faulty water pump operation underground (suffocation from carbon-monoxide)</td>
<td>Ogola et al., 2002</td>
</tr>
</tbody>
</table>
Table 1-5: Occupational and health impacts of surface gold mining

<table>
<thead>
<tr>
<th>Country</th>
<th>Health Risk Type</th>
<th>Information Source</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Hand tremors and fatigue</td>
<td>A study of 19 year gold miner at a placer gold mine where he was exposed to Au–Hg amalgam with mercury urine level of 143 μg L⁻¹ (this exceeded the recommended no-adverse-effect-level of 50μg L⁻¹)</td>
<td>Donoghue, 1998</td>
</tr>
<tr>
<td>South America</td>
<td>Adverse effects on brain development</td>
<td>The concentration of mercury in hair of Brazilian children revealed decreasing test scores of children subjected to neuropsychological tests of motor function, attention span, and visuospatial performance</td>
<td>Grandjean et al., 1999</td>
</tr>
<tr>
<td></td>
<td>Under height and underweight children with gum discolorations and skin abnormalites</td>
<td>Study of school children from an area of intense mercury amalgamation activities in Brazil</td>
<td>Akagi et al., 2000</td>
</tr>
</tbody>
</table>
The accessibility of the internet and globalization of the news media (Smith, 2007) easily diffuse local anti-mining issues to the global level and can affect the profitability of a mining firm. Mining companies, therefore, have little choice but to respond in order to protect their reputation and shareholders value via Corporate Social Responsibility (CSR) practices. The concept of CSR suggests that a business has an obligation to contribute to the interest of those affected by its operations and respond to their desires and concerns (Yakoveleva, 2005). According to Acutt et al. (2001), CSR in the mining industry is a mechanism for maximization of the positive and minimization of the negative social and environmental impacts of mining while maintaining profits.

Globally, gold mining stakeholders such as the global mining industry body, financiers of mineral development projects and international development organizations, have developed several CSR programs to address these concerns. At the local level, mining companies have voluntarily collaborated with local and international development organizations, local governments and civic organizations to contribute to the development needs of their immediate communities. However, local mining communities and non-governmental organizations consider such actions from mining companies as “green wash”, a projection of a caring image without any significant contribution to socially and environmentally business practices.

These growing trends are observed in Ghana, a West African gold rich nation and the second largest producer in Africa after South Africa. In 1983, the Ghanaian government embarked on a national Economic Recovery Program (ERP) under the
guidance of the International Monetary Fund (IMF) and World Bank (WB) to promote investment in the economy especially in the country’s mining sector, a major source of foreign exchange (Hilson, 2004; Akabzaa and Dramani, 2001). The liberalized investment regimes under the program to encourage mineral investors included decreased corporate income tax and royalties paid to government, import breaks on equipments and accessories for mining production and other incentives (Akabzaa, 2009). Government bodies with mandates for mineral development were reformed and new mining agencies were established to regularize the mineral sector for maximum benefit. These resulted in significant international investment in Ghana’s mining sector.

The gold mining industry is associated with water and air pollutions, human right abuses, displacement of communities and other related impacts. Environmental stakeholders and news media outlets in Ghana have reported about these negative impacts of gold mining. As a result, the industry has responded by developing several voluntary projects and programs to ensure sustainable mineral development. These include infrastructure developments (examples: roads, clinics, schools) and investment in the local people to acquire entrepreneurship skills through partnerships with developmental and environmental non-governmental organizations (NGOs) (Hilson, 2006). Environmental stakeholders and local communities still express dissatisfaction about the operations of mines in their communities. Mining companies have been accused of investments in local sustainability projects of their choice, non-inclusive mechanisms of involving the concern of communities in the design of communities development
projects, and the use of one-fit all sustainable development strategy for dissimilar communities (Hilson, 2006; Nyame, 2002). On the other hand, corporate gold firms claimed compliance with the government of Ghana’s mineral development licensing and environmental policy requirements. Moreover, the mining firms claimed that their community development projects are their social responsibility that should not substitute the government’s role in developing the mining host communities. These have resulted in numerous protests and disputes between local mining communities and gold mining firms in Ghana. In 2006, the Ghanaian government reformed its mineral and mining policy to reflect current strategies and developments in the global mining industry, environmental protection and community interest for the development and sustainability of mining operations. The aim of this dissertation is to describe the operationalization and effectiveness of the gold industry’s CSR from the global level (worldwide) to the local level in Ghana.

Corporate Social Responsibility has become an important component of a successful mining operation (Cheshire, 2010; Kapelus, 2002). Currently, mining companies report their social responsibility practices alongside financial and annual reports on their corporate websites. This periodic sustainability reports are information sources for mining shareholders and the public about the commitments of companies to social, ethical and environmental matters. Hence, objective and informative disclosures in such reports will aid ethical investors/shareholders and the public to reliably establish the sustainability performance of companies. Most prior researches on mining and social
responsibility support the integration of CSR programs into the essential management pursuits of running mines in order to actualized community needs (Dashwood and Puplampu, 2010; Gifford et al., 2010; Gifford and Kestler, 2008; Imbun, 2007).

However, such company-led strategy has not eliminated the tensions between corporate mining firms and their host communities. Corporate mining firms can operate in harmony with their host communities when they launch CSR programs in partnerships with local communities (Coumans, 2010; Vintro and Comajuncosa, 2010; Viviers and Boulder, 2010; O’Faircheallaigh, 2008; Trebeck, 2007). A sustainability disclosure document that collates all the social responsibility practices and aspirations of companies are commonly available in the public domain for a demonstration of good corporate citizenship.

Currently, sustainability disclosures are common with most industries; however, the disclosure levels vary within the same industry and across different industries due to the combination of factors. There are no known studies on the sustainability disclosures of mining firms that have established the factors that govern their disclosure levels. Nevertheless, a recent examination of the social and environmental disclosure of mining companies by Jenkins and Yakovleva (2006) who classified mining firms from leaders to laggards is laudable. However, this study could not establish the reasons for different levels of disclosures. In this research, the type of information disclosed (quantitative and/or qualitative) was used to characterize the quality of social responsibility disclosures and the factors that governed the quality of the disclosures were established.
The social responsibilities practices of the mining corporations are meaningless if they do not satisfy the needs of their host communities. The mining host communities are the most directly and adversely affected by mining activities, hence their concerns must be address to safe companies from reputational damage and follow up consequences such as loss of investors confidence. Local mining communities have collaborated with global organizations to establish networks of opposition to mining or specific issues related to mining operations (Humphreys, 2000). This has led international bodies and pro-business organizations to recognize the concerns of mining host communities. As a result, mining companies have adopted and implemented responsible mining codes and initiatives to demonstrate their contributions to the sustainable development of their host communities in response to stakeholder pressures and demands. The literature has focused on mining operations negative effects (Els, 2011; Thornton et al., 2003; Humphreys, 2000) and operational risk for not addressing local communities concerns (Newenham-Kahindi and Beamish, 2010; Warhurst and Mitchell, 2000). However, these researches do not provide any information on the causes of communities oppositions to mining even though mining companies are committed to responsible gold mining practices. In this current study, reasons for this opposition were determined from the compatibility studies between the objectives of the current responsible mining codes and initiatives of the mining industry and the concerns and expectations of the local communities.
These growing trends are observed on the local scale in Ghana, a West African gold rich nation. Previous studies have found a positive relationship between the intensity of media coverage and the rise in the public agenda (Mc Combs and Reynolds, 2002) about issues within the public domain. The proliferations of media outlets have increased the debate about the contribution of the mining industry to the sustainable development of the immediate communities and the nation as a whole. Hence, newspapers coverages about mining issues were used as proxies to determine the dominant public discourse about gold mining. Previous works about gold mining in Ghana have focused on its economic, social and environmental impacts (Armstrong, 2008; Kumah, 2006; Eshun and Jellicoe, 2001). A number of researches have illustrated the inability of CSR programs to fulfill community needs. To present, there is no know research that has evaluated the concerns of the public regarding the mining industry. Benchmarking such concerns is important for the development planning of a nation with a young democracy coupled with an effective media freedom and public freedom of expression. In this research, the various concerns of mining stakeholders were established by the content analysis of mining newspaper articles.

The fundamental challenge of mineral development to the governments of mineral rich nations is the promotion of mining sector investments while ensuring the sustainable development of the immediate communities in the midst of competition from other mineral-rich nations. Most mineral-rich nations of developing countries have adopted the Latin American Mining Law Model (LAMLM) as the international best-practice standard
for attracting mineral investors (Ayisi, 2009; Bastida, 2006). The literature has focused on determining the elements of the LAMLM that made it successful in attracting mineral investment to mineral rich Latin American countries (Ayisi, 2009; Tienhaara, 2006; Williams, 2005; Walde and N’DI, 1996). However, recent studies such as Bannigan, 2009; Waye et al., 2009; Hilson and Nyame, 2006; Bastida, 2005; IEED and WBCSD, 2002, have called for mineral-rich nations to incorporate social, economic and environmental strategies into their investment decision-making. The incorporation of these strategies would help determine the holistic contributions of mining to sustainable development of a nation. This goes beyond the current focus on the creation of attractive investment packages without the significant concern about the sustainability of the nation especially the mining host communities. In this regard, this research evaluated the principal law of Ghana governing mineral development, the Minerals and Mining Law of Ghana of 2006 against the LAMLM, and within the context of sustainable development.

Beyond the legal requirements of the Minerals and Mining Law, the gold mining companies in Ghana have voluntarily adopted global, national, regional and local development initiatives to address the needs of their communities in and around their areas of operations. Corporate mining firms have collaborated with mining host communities and other local stakeholders to develop and implement development programs at the local level (Fiddler, 2009; Gifford and Kestler, 2008; Harvey and Brereton, 2007; Holocombe, 2006; Labone, 1999; Davis, 1998). Previous studies have illustrated the negative consequences to mining operations when mining firms fail to
recognize and respond to community expectations (Trebeck, 2007; Quiroga, 2002). Nevertheless, fulfilling the demands of mining host communities may not necessarily contribute to the sustainable development of the community. Despite several researches about mining and its contribution to sustainable development, few have evaluated CSR programs within the context of sustainable development. In this research, a sustainability measurement standard was used to establish the contribution of a mining firm’s social responsibility programs to the sustainable development of its host communities in Ghana.

This study draws upon different analytical and theoretical frameworks. The recommendations proposed by Al-Tuwajri et al. (2004) on quantitative disclosure guide the objectives and discussions section of this study that focuses on the factors that govern the extent and content of social disclosures by the gold mining firms. According to the author, a quantitative disclosure is more objective and informative to stakeholders than qualitative information. Hence, the more quantitative information exists in a firm’s social responsibility disclosure, the higher its social disclosure level and vice versa.

Similarly, concepts from the works of Gifford and Kestler, 2010; Newenham-Kahindi and Beamish, 2010; Thornton et al., 2003; and Kapelus, 2002 related to the mining industries’ social responsible practices and community concerns were used to deduce the research questions. The authors showed that mining corporations would operate in harmony with their host communities when they engage them in the development and implementation of social responsibility programs. Hence, a viable
global responsible gold mining codes and initiatives must address local community concerns about the operations of goldmines.

In addition, the media agenda setting theory (Cox, 2006; Kwansah, 2003; Mc Combs and Reynold, 2002; Brown and Deegan, 1988; Mc Combs et al., 1997) was employed in the investigations of the concerns of the public related to mining. The theory posits a relationship between the relative frequency of media attention to various topics and the degree of salience these topics have for the public. In terms of causality, increased media coverage leads to increased public concern for a particular issue.

Further, the concepts of the Latin American Mining Law Model (Bastida, 2005; The World Bank, 2003; Williams, 2005; Batsida, 2002) and the emerging best practices for sustainable development of the mineral industry (Bastida, 2005; Hilson and Nyame, 2006; IEED and WBCSD, 2002; Warden-Fernandez, 2001; Bannigan, 2009) were used in assessing the new mining law of Ghana’s contribution to the sustainable development of gold mining. The LAMLNM model is described as the international best practice standard for mineral investment while the emerging best practices for sustainable development of the mineral industry are the innovative strategies by mineral-rich nations to ensure sustainable mineral development. It is therefore expected that a truly responsible mineral-rich nation will have a sustainable mineral development policy that will attract investments and ensure sustainable development.

Finally, the Seven Questions to Sustainability (7QS) framework guided this study. The 7QS consists of seven key themes about which questions will be posed as a
method of assessing a mining/mineral project’s and/or operations net long-term positive or negative contributions to sustainability. It proved useful in the evaluations of the contributions of CSR practices of Newmont Ghana Gold Limited (NGGL) to the sustainable development of their host communities in Ghana.

1.2 Research Objectives and Organization

The overall objectives of the study were to:

- Examine the sustainability reporting (disclosure) level of the global top ten gold mining corporations through the public disclosure of their social responsibility practices

- Investigate whether the international codes and initiatives that mining companies have developed, adopted and implemented in the name of responsible gold mining addresses the local community concerns about the sustainability of the industry,

- Examine which mining stakeholder (mining communities, government or mining companies) responsibility is to provide for community improvement and overall human development,

- Assess the contributions corporate mining firms to sustainable development of its host communities in Ghana
The main research methodology was content analysis. A content analysis research technique involves making replicable and valid inferences from data according to their context (Krippendorff, 1980). These inferences could be in various qualitative and/or quantitative groups (themes or categories) that would depend upon the adopted criteria. The quantitative and qualitative inferences were both used in this study because the study draws upon different analytical and theoretical frameworks as described above. The data sources for this research were public disclosure documents available on the websites of corporate gold mining firms, international financial institutions, not-for-profit firms, governmental institutions with mandates on mining, and online database of media sources. The information derived from these sources was codified and analyzed manually as required by the aims and objectives of each chapter. Further details of the methodological techniques are as illustrated in each of the chapters. The research results showed an industry wide CSR practice. In addition, the results indicated that the locations of corporate offices and operations in the same country, level of institutional pressure of a mining host country and the extent of companies operations across the globe governed the social responsibility disclosure (reporting) levels of mining companies. Moreover, the research showed that the responsible mining codes and initiatives of the mining industry aimed at sustainable mineral development were incompatible with community concerns about the industry. Further, the result of the study aimed at assessing the gold mining issues within the public domain showed a growth in public interest about gold mining in decreasing stakeholders interest of industry, NGO’s and community groups, government and illegal miners.
Another portion of this dissertation assessed the current mining law of Ghana against the LAMLM and emerging best practices for sustainable development of the mineral industry. The result showed that the provisions of the Ghana’s Minerals and Mining law were compatible with the international best practice for mineral investment but moderately compatible with the proposed sustainable mineral investment standard. Finally, the effectiveness of CSR programs on the ground to fulfill real communities need was evaluated by the case study of Newmont Ahafo Development Foundations (NADeF) programs in the Ahafo mine local community. The result showed that the foundation’s projects fulfilled real community needs. However, the foundation needs to implement its natural resource and economic empowerment projects in order to contribute to the sustainable development of the Ahafo mine local community.

The dissertation has been organized into five main chapters (i.e. chapters two through six) as well as this introductory chapter and a conclusion in the form of five manuscripts to be submitted for publication. The “target” journals for publication are World Business, CSR and Environmental Management, Cleaner Production, Environmental Management, Natural Resources Forum and Development Studies. Chapter two: “Gold Mining and Corporate Social Responsibility” examines the development of global mining industry and sustainability record of global top ten gold mining corporations through the public disclosure of their CSR. Gold mining corporations are engaged in CSR practices as a means to gain the social license to operate in harmony with their host communities. Mineral development stakeholders (project
financiers, supply chain members, international developmental agencies) and mining corporations have collaborated with development and environmental not-for-profit organizations in their quest for sustainable mineral development. However, mining companies operating in local communities still risk community protest and disruption of operations due to their inadequate responses to communities concerns and expectations.

Chapter three entitled “Analysis of Codes and Initiatives of Responsible Gold Mining” investigates the compatibility of corporate mining firms CSR themes about responsible gold mining with the community expectations from mining corporations. The case study of gold mining in Ghana covers chapters four to six. Chapter four: “Gold mining in Ghana” examines the Ghanaian mineral industry to identify the major stakeholders and their concerns about sustainable mineral development. It also investigates how the government-owned and privately-owned newspapers prioritized the various sustainability concerns of the stakeholders. Chapter, five entitled: “Public Responses to Gold mining-The Role of Government Policy in Sustainable Gold mining in Ghana” investigates Ghanaian minerals and mining law within the context of models for attracting mineral investors and sustainable mineral development best practices. Chapter six the final chapter entitled: “Private Responses to Gold Mining- A Case study of Newmont Ghana Gold Limited (NGGL) Foundation and Sustainable Gold Mining in Ghana” investigates the effectiveness of CSR programs designed by NGGL in fulfilling their host communities expectations and concerns.
This research has determined the factors that governed the sustainability disclosure levels of mining companies and the reasons for the continuous community opposition to gold mining projects despite the commitments of global gold mining companies to responsible gold mining. Furthermore, the study showed that despite the common view that gold mining’s impact is uniformly negative; the industry’s involvement in Ghana has been very significant. However, the study has identified gaps in the contribution of social responsibility programs to sustainable development since the mining host communities are prioritizing economic and infrastructural improvements at the detriment of environmental rehabilitation and empowerment.
References


Cursino, L., Olberda, SM., Cecilio, RV., Moreira, RM., Chartone-Souza, E., Nascimento, AMA. (1999). Mercury concentrations in the sediment at different gold prospecting sites along the Carmo stream, Minas Gerais, Brazil, and frequency of resistant bacteria in the respective aquatic communities. Hydrobiologia, 39, 5–12.


gold market


CHAPTER 2
GOLD MINING AND CORPORATE SOCIAL RESPONSIBILITY

Abstract
Mining companies are engaged in voluntary practices and philanthropic activities to
demonstrate their moral and ethical contributions to the development of the immediate
communities in and around their mining lease areas. Such contributions commonly
referred to as Corporate Social Responsibility (CSR) have become an important element
for successful business operations. Gold mining companies publish their CSR matters in
their annual reports or as standalone reports on their websites along with financial
reports. Mining stakeholders are skeptical about the themes and level of details of the
reported CSR practices in the public domain. By content analysis, this study aimed to
investigate the extent of quantitative and/or qualitative information related to gold mining
CSR practices that firms disclose in their annual reports. The top ten gold mining
companies ranked according to their market capitalization were used as a proxy for
global corporate gold mining firms. The results showed variability in their disclosures.
The companies were selective in the themes of CSR that they disclosed. Most companies
disclosed more qualitative information than quantitative information even though the
latter is more objective and informative to stakeholders. Companies with corporate
offices and operations located in countries with greater institutional pressure disclosed
more in their social responsibility reports. Furthermore, the corporate social responsibility
disclosure level varied directly with global operational coverage across the continents.
2.1 Introduction

Today’s continuous boom in the global demand for gold has resulted in significant investments in the gold mining business. Global supply of gold from major gold producing regions, thus USA, South Africa, and Canada (Mudd, 2007) has not been able to match this demand. Obviously, when the demand for gold is higher than supply, the price of gold will skyrocket as the current trend in the gold market shows. Therefore, multinational gold mining firms are riskly investing in financially, geologically and geopolitically challenging non-traditional gold mining countries in Africa, China, Middle East and the former Soviet Union to take advantage of the rising gold price (Goldman, 2010). Gold mining contributes to the revenue base of the mineral endowed nations (Spiegel, 2009; Yelpaala and Ali, 2005; Feltenstein, 1997). However, mining has a history of resource depletion and consumption (Mudd, 2007), negative environmental impacts (Koenig, 2000; Alberswerth et al., 1989; Da Rosa and Lyon 1997), health and occupational impacts (Ogola et al., 2002; Akagi et al., 2000, Grandjean et al., 1999; Boffetta et al., 1994). Moreover, there have been numerous accounts of social impacts due to gold mining operations (Imbun, 2007; Kumah, 2006; Hamann, 2004; Hamann and Kapelus, 2004). These historical accounts demonstrate the unsustainability of gold mining operations that will prompt host communities to oppose mine development or operation (Holden, 2011; Holden and Jacobson, 2007; Jenkins and Yakovleva, 2006; Banks, 2002). The global quest for sustainable development and the inherit challenges of gold mining stated above have put the sector on the spot. In response, gold mining corporations have gone beyond the compliance with regulatory requirements to
voluntarily develop, adopt and implement measures that will allow them to operate successfully and sustainably within their host community. A practice commonly referred to as Corporate Social Responsibility (CSR). A firm’s social responsibility projects will include renovation of school buildings, access roads, community buildings and other basic infrastructures (Bury, 2004; Pegg, 2006). In addition, mining firms contribute to their host communities via community health initiatives (Gifford and Kestler, 2008; Jenkins and Obara, 2006; Filer and Macintyre, 2006), and foundations for social investment purposes. Other CSR programs include support for small local businesses, enhance community governance capabilities and other corporate level policies that ensure fairness, accountability and respect of economic and human rights (Newenham-Kahindi, 2011; Temeng and Abew, 2009).

Corporate social responsibility has become an important component of successful mining operations (Cheshire, 2010; Kapelus, 2002). Gold mining companies are engaged in numerous CSR projects to demonstrate their contribution to the sustainability of gold production. It is common to find issues (themes) about mining companies social responsibilities practices reported as stand-alone documents or alongside financial reports and annual reports on the corporate website. However, the level of transparency (disclosure) about these practices in annual reports significantly varies between mining companies. This chapter investigates the level of CSR transparency among the top 10 global gold mining firms ranked according to their market capitalization. CSR transparency is defined here as the extent of quantitative and/or qualitative information that a gold mining firm discloses about its sustainable operations in a community to the
public. These firms were compared across the level of qualitative and quantitative (including monetary) disclosure of identified CSR transparency themes. The first part is an overview of the gold mining activities such as its development, types and related impacts. The second part investigates the motivations for CSR in the gold mining sector and the CSR disclosure levels of the top 10 gold mining firms.

2.2 Global Development of Gold mining

Historically, the method of gold mining evolved on the ease of finding the precious metal. Ancient gold mining activities was based on discovery of the traces of the mineral in the soil or within the reach of hand operated tools. For example, weathering, erosion and deposition of gold bearing rocks led ancient miners to find gold traces in the beds of rivers and streams (Merchant, 1998). As the availability of the easy-to-reach gold decreased, miners invented new and more effective methods of searching deep into the earth to collect gold (McDade, n.d.). This led to the adoption of advanced mining methods that involved huge financial investment coupled with techno-scientific methods. Such advanced methods also include the use of heavy equipments and precision softwares and development of systematic phases of gold mining from exploration to mine development. Moreover, as gold grades continued to fall (very low content of gold in rocks) over the years and as resources became harder to find due to high waste to gold ratio (low-grade ores), other efficient means of extracting minerals were sought. In the early 1990s to present, the technology that revolutionalised gold mining was heap
leaching, a method that allowed extraction of most low gold ores from waste and low
grade deposits that would not have been economical to mine prior to this technology
(Gold Sheet Links, 2010). This led to a significant “leap” in annual gold production from
1995 to present (Figure 2-1). Generally, in heap leaching, the mined ore is crush to a
specific size and placed on a giant leach pad in the form of a heap. A solution of dilute
cyanide will then be sprayed on the top of the heap to leach the gold. After the
percolation of the solution to the bottom of the leach pad, it will be collected for
processing to recover the gold (Wright, 2009; Eisler and Wiemeyer, 2004), reused and
eventually disposed of, supposedly in an environmentally friendly manner.

The mercury amalgamation process was one of the oldest methods of gold
extraction, but the corporate miners and other organized sectors abandoned it due to
economic and environmental concerns (Eisler and Wiemeyer, 2004). However, this gold
extraction method is now common with small scale miners (legal and illegal) operating in
South America, Asia, and Africa who are often driven by unemployment, poverty, and
landlessness (Veiga et al., 2006; Spiegel and Viega, 2006; Hilson and Pardie, 2006; Van
Straaten, 2000). During gold amalgamation, liquid mercury is poured over crushed and
milled ore in a pan or sluice, the mixture of gold and mercury (the amalgam) is separated
by hand, passed through a chamois cloth to expel the excess mercury. The recovered
mercury is reused for other processes while the concentrate of gold-mercury is burnt over
stove to volatize the mercury (Jonsson et al., 2009; Tschakert and Singha, 2007; Castro
Figure 2.1: The effect of leaching method of extraction on the global gold production. Data source: Gold Sheet Links, 2010.
and Sanchez, 2003; Aryee et al., 2003; Hilson, 2002).

Over the years, both gold extraction techniques have led to significant environmental and health impacts due to accidents (Koenig, 2000; Da Rosa and Lyon, 1997; Clark and Hothem, 1991; Allen, 1990; Alberswerth et al., 1989), spills (Da Rosa and Lyon, 1997; Greer, 1993) and occupational health hazards (Olivero and Solano, 1998). Other effects identified with gold extractions include health risks (Appleton et al., 1999; De Lacerda and Salomons, 1998; Davies, 1997; Ikingura et al., 1997; Nriagu and Wong, 1997; Reuther, 1994) and inefficient management and negligence (Clark and Hothem, 1999; Da Rosa and Lyon, 1997; Lacher and Goldstein, 1997; Henny et al., 1994, Leduc et al., 1982)

2.3 Types of Gold Mining Methods

Gold mining consists of five different phases: exploration, project development, mine operation, beneficiation and mine closure. The various activities involved in each of the phases are outlined in Table 2-1. It is the mode operation during phase 3 of gold mining activities (mine operation) that distinguishes gold mining types. Gold mining broadly falls into two groups: underground and surface mining.

2.3.1 Underground Mining

Underground mining is usually employed to recover gold buried several meters under the ground in a hard rock. In order to mine the ore, vertical tunnels referred to as
<table>
<thead>
<tr>
<th>Mining Phase</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exploration</td>
<td>Surveys, field surveys, drilling and exploratory excavations</td>
</tr>
<tr>
<td>2. Project Development</td>
<td>Construction of roads and buildings, erection of treatment plants, overburden placing, preparation of disposal areas, construction of service infrastructure such as: power lines or generating plants, railways, laboratories, water supplies and sewage</td>
</tr>
<tr>
<td>3. Mine Operation</td>
<td>Method of mining depending on the geographical and geological location of the discovered minerals and physical process of recovering the ore rock</td>
</tr>
<tr>
<td>4. Beneficiation</td>
<td>Onsite chemical processing to reduce particle size, flotation using chemicals, gravity separation or magnetic, electrical or optical sorting, ore leaching with a variety of chemical solutions</td>
</tr>
<tr>
<td>5. Mine Closure</td>
<td>Rehabilitation of mined area to mitigate present and future environmental impacts</td>
</tr>
</tbody>
</table>

Source: Yakovleva, 2005
shafts are dug to reach the correct mineral depth followed by inclined or horizontal tunnel along the ore vein (Search Mining, 2009). Engineered design roofs that also serve as an additional access route for safety and ventilation hold the horizontal structures. The tunnels are so deep that the miners are normally route by train, truck or man-riding conveyor belt. Different extractions techniques are available but the main ones are room and pillar, stoping, block caving, and cut and fill (Search Mining, 2009). The room and pillar technique involves the development of matrices of excavated rooms with pillars left between them to hold up the roofs. The stoping technique involves the extraction of the gold as a face between two parallel roadways. Block caving is the underground mining technique where tunnels are driven under the ore deposits and the rock above is fragmented by drilling and blasting that allow the rock to collapse under its own weight, and the material is removed through ore passes. Cut and fill is usually employed in mining of irregular ore deposits. It involves mining upwards in horizontal slices with each slice being backfilled (usually with a concrete mix to provide a suitable floor) once the fragmented ore from above is collected. Based on the mining configuration, the target mineral is recovered by ore passes or lifted from the floor using load-haul-dump (LHD) vehicles (Search Mining, 2009). Transportation to the shaft or incline can be by train, truck or conveyor.

2.3.2 Surface Mining

Surface mining techniques are employed on near surface gold deposits. The type of surface mining also depends on whether the material is located in a soft or hard rock.
Surface mining includes placer mining, hydraulic mining and open pit/cast mining (Search Mining, 2009; Minar, 2010). Placer mining is used where the raw gold mineral ore is located in sand, gravel or similar and it can be easily recovered without the use of advance technique such as blasting. The types of placer mining are sluicing, panning and dredging. In sluicing, the ore containing gravel is shoveled into a sluice box that sits on an incline (Minar, 2010). The sluice consists of a box with mix traps and riffles that catch the gold as it passes through it. As water is fed into the sluice, the riffles trap the heavy minerals (gold) which would then be processed to obtain the gold. Panning is a placer mining technique that involves the use of a gold-pan. The pan is swirl to remove the waste material leaving the gold particles trapped in the ridges. A large-scale semi-mechanized placer mining technique that employs the use of bucket wheel excavators, power shovels draglines and conveyors is referred to as dredging. Hydraulic mining is a surface mining technique whereby high pressure water is sprayed on an area of a rock such that it breaks up to dislodge any placer ore deposit, which is then milled.

Open-pit mining technique is used to mine ores present in hard rocks. The term open-pit is interchangeably use with opencast mining; however, technically, the latter refers to soft-rock mining of minerals such as coal or limestone. These two differ by the shape of their pits: open pit mines are generally oval while opencast mines are rectangular in shape (Search Mining, 2009). Open-pit mining operations include the removal of vegetation, top soil, rocks and other features that lie above the gold deposits. It is dominated by drilling and blasting, and then transportation of the broken ores to the
processing plants either by trucks or via conveyor belts. The choice between surface and underground mining is an economic one. The economics of surface mining cost depends on the ore: waste (stripping) ratio, which in turn depends on the shape of the ore body, the amount of overburden to be removed and the safe steepness of the wall (i.e. bench height versus width). For underground mining, the choice depends on the type of rock and the number of fractures (Minar, 2010). Sexana (n.d) outlined the extent of environmental hazards by these gold mining types that differ by their nature of operation (Table 2-2).

2.4 Types of Mining Companies

There are variations in mining company types based on the parameters below:

a. **Annual production level:** Gold companies are classified as majors, intermediates or juniors. The production level of 0.5million ounce (Moz) and 0.2Moz are the base values. Major gold companies have production levels > 0.5Moz. Intermediate gold companies produce less than 0.5Moz but greater than 0.2Moz and the junior companies produce less than 0.2M0z (Goldval, 2009);

b. **Market capitalization:** Here the companies are ranked as seniors, mid-cap and juniors companies based on the peak market capitalization of $2,000M and least of $200M. Thus seniors have market capitalization > $2,000M; mid-cap have market capitalization of $200M to $500M and juniors market capitalization of $500M to $100M (Goldval, 2009);
**Table 2-2: Surface mining and underground mining environmental impacts**

<table>
<thead>
<tr>
<th>Environmental Impacts</th>
<th>Surface</th>
<th>Type of Mining</th>
<th>Underground</th>
</tr>
</thead>
</table>
| **Ecology**           | - Loss of flora and fauna from mining site  
- Pollution of water bodies due to migration of overburden leachate, pollutants from oil/grease spillage and blasting residues  
- Retardation of growth of flora due to deposition of atmospheric dust on their leaves  
- Noise from mining operations may drive away wild animals and birds from the nearby forest | - Loss of flora and fauna during construction of mining shaft  
- The released of polluted water from underground to the surface may affect the local vegetation  
- Polluted underground water that reached the surface may affect its water bodies |
| **Land**              | - Digging and dumping of overburden rock on land changes topography around the mining site  
- Change in land-use pattern due to mining operations  
- Leachate from overburden and other rocks and polluted water may contaminate agricultural land  
- Failure of tailing dumps may release highly toxic liquid that could impact land significantly | - Land change due to construction and infrastructure development  
- Where subsidence occurs, there will be change in topography and drainage pattern  
- Underground mining alterations to surface, subsurface and underground water bodies may manifest on land rendering unusable for an intended purpose  
- Pumping and discharge of water polluted due to mineral extraction techniques from underground mines affects the top soil on the surface |
| **Water**             | - Surface water around mining sites have to be disrupted or removed  
- All underground water sources have that overlie mineral deposits have to be dewatered and damage in order to get to the ore bearing rocks  
- Water bodies around surface mining gets polluted by leaching from overburden dumps, discharge of pumped mine water and other activities in the vicinity of the water bodies  
- Pyrites and sulphides in rock mass may produce acidic solution that may contaminate surface waters when they reach them  
- Rainfall runoff from areas surrounding the mines may carry suspended solids into water bodies | - Pumping of surface water that reached underground mines could impact on availability of water in the mining area and neighboring areas  
- Cracks on land that develop due to underground mining activities may serves as conduits for runoff water that may contain pollutants into reaching the underground mining  
- Unused underground mine working in the presence of abundant water and dynamite residues could be a source of underground water pollution. Pumping and discharging of this polluted water could contaminate the surface water bodies |
| **Atmospheric and Noise Pollution** | - Mining activities that produce dust gets airborne to increase the concentration of soil particulate matter (SPM) in the surrounding air  
- Drilling, blasting and transportation of overburden and mineral contribute to SPM and explosive fumes into the atmosphere. These impacts are also caused by in pit crushing and loading  
- Minerals and rock mass containing sulfur and its compounds may release SO\textsubscript{2} and diesel based equipments used in mining activities may release significant of SPM and NO\textsubscript{x}  
- Continuous noise generated during surface mining process and impulsive noises generated due to blasting and drilling becomes unbearable. The noises generated are far beyond ambience level since the noise from such different source is reflected and refracted | - The exhaust from the and more contribute SPM, NO\textsubscript{x} and CO\textsubscript{2}  
- Increase in ambient noise levels due to the operations of machines and equipments at the shafts, compressor house, workshop |

**Source:** Modified from Saxena (n.d)
c. *Capital investment and the type of equipments used:* the major divisions here are large-scale companies and small-scale mining companies. The large-scale companies are further divided into majors and juniors. Major large-scale companies are large organizations that have capital investment of over $100M, use heavy equipments (e.g. pay loaders, retro-excavators), chemical (e.g. cyanide) and other organic compound (Miranda et al., 1998). The junior large-scale companies are midsized companies with about $10-$50M capital investment who are commonly involved in exploration and some extraction in joint ventures (Miranda et al., 1998). The small-scale mining companies on the other hand fall into three categories: artisanal, semi-mechanized and fully mechanized in order of increasing level of sophistication in mining cooperation types and safety levels. Artisanal miners are mostly small numbers of individuals who operates on a piece of land by the use of simple tools such as pans and pickaxes with little monetary investment and mercury to extract for gold. However, semi-mechanized small-scale miners are individuals, associations or loosely organized groups who invest medium capital in extraction of gold by the use of mercury. They normally employ heavy equipment such as suction, dredges, hydraulic pumps, pans, sluice boxes. Fully mechanized small-scale miners are the last type of small-scale mining companies. They are cooperatives, associations or loosely individuals who invest medium capita, use mercury and equipments such as winches, pickaxes, dynamites and electric drills to extract for gold.
d. **The phase of operations:** by this scheme, gold mining firms fall into three categories: senior producers, junior producers and junior explorers (Canadian Resource Equities, 2004). Senior producers are those gold mining companies who generally do not explore for gold they use up part of their reserves each year and replenish them by buying smaller companies. Unlike senior producers, the junior producers are intermediate sized firms that focus on exploration and production, thus, they expand their reserves through exploration and development programs. Junior explorers focus on exploration around the world to look for gold. They normally have high return when they discover mineralization of high potential (Canadian Resource Equities, 2004)

### 2.5 International Incentives for Gold mining

During the 1970s and early 1980s, the series of reports by independent bodies and the United Nations raised concerns about the link between development and environment. This was culminated by the Brundtland Report that defines how development can be carried out with the environment on mind, which is commonly referred to as sustainable development. The Earth Summit, a global conference on the relation between environment and development followed this global concern. The depletion of the natural resources was a major concern on the debate about sustainable development of the mining industry (Whitmore, 2006; Hilson and Basu, 2003). These developments led to increased pressure on mining companies to improve upon their environmental, social and
cultural disruptions by taking into account the views and values of local communities and
the public. Following these developments, the International Council on Metals and the
Environment (ICME) was established in 1991 to bring together major non-ferrous and
precious metals mining and primary metal companies worldwide (Emel et al., 2006;
Dashwood, 2005). ICME acted as an industry representative on environment and health
issues at international level, and developed and promoted the criteria for responsible
policies and practices in relation to environment and health. The Global Mining Initiative
(GMI) was also established by the world’s largest mining and minerals companies under
the auspices of the World Business Council on Sustainable Development (WBCSD) to
promote corporate social responsibility in the mining industry (Dashwood, 2005).
Specifically, through an independent study, the GMI aimed to promote the industry’s
awareness of new socio-environmental challenges with specific respect to sustainable
development. Moreover, international and national mining associations have worked
toward the promotion of sustainable practices (from environmental performance to
environmental reporting) in the mining industry by encouraging their members to adopt
voluntary initiatives that include guidelines, codes of practices and environmental
charters (Emel et al., 2006).

Over the years, several historical environmental disasters and human rights
incidents that took place in the mining industry (example: acid mine drainage to the
Alamosa River from the Summitville Gold Mine in 1992; toxic leaching from waste
rocks of the OK Tedi copper mine to OK Tedi and Fly rivers in Papua New Guinea in
1994), petroleum industry (example: the oil spill from the Exxon Valdez in Alaska in 1989), chemical industry (example: Rhine pollution caused by fire at the Sandoz chemical factory in Switzerland in 1986) and energy sector (example: nuclear reactor explosion in Chernobyl in 1986) led to the growth of public concerns about the negative effects of mining. By the current momentum of social networking via internet, similar local events can easily become global one. Thus, the development and advancement of the internet have reinforced global “transparency” related to local negative impacts of gold mining. Therefore, today, the mining industry is very much concerned about its reputational damage due to the public concerns that may rise due to their operations.

2.6 Social Responsibility of the Top ten Gold mining Firms: A Comparison

In reaction to increasing pressure from international organizations, national governments, consumers, employees, local communities, NGOs and other stakeholders, mining firms have developed and implemented several voluntary practices that are consistent with corporate social responsibility. Corporate Social Responsibility (CSR) is defined as the response of mining companies to the environmental and social concerns of their stakeholders (Yakovleva, 2005). Hence, gold mining companies will differ in their CSR policies and practices based on the “vigilance level” of their stakeholders. The literature about CSR in the gold mining industry includes studies that analyzed the operationalization of CSR at the firm level (Dashwood and Puplampu, 2010) and the need for companies to integrate CSR into the essential management pursuits of running
mines (Imbun, 2007). Other studies have focused on how mining firms gained local legitimacy through contributions towards the development of their host communities (Gifford et al., 2010; Gifford and Kestler, 2008) and addressing host governments development failures in rural areas (Cheshire, 2010; Buultjens et al., 2010). Moreover, Hamman (2004) showed how state legislative programs promoted CSR in South Africa mines and Warhurst and Mitchell (2000) illustrated the effects of inadequate regulations and lack of CSR. Cronje and Chenga (2009) and Garvin et al. (2009) showed the gaps between CSR policies and practices while Jones (2007) investigated gaps in a CSR strategy aimed at labor management. O’Faircheallaigh (2008) illustrated how CSR in the form of negotiated agreement between mining firms and indigenous peoples resolved their conflict. Trebeck (2007) demonstrated how a rural community concerned about insufficient implementation of prior agreement (an element of CSR) with a gold mining firm demanded accountability. Other studies (Coumans, 2010; Vintro and Comajuncosa, 2010; Viviers and Boudler, 2010) focused on CSR accountability and reporting while Jenkins and Yakovleva (2006) examined the trends in social and environmental disclosure of mining companies CSR to classify them from leaders to laggards.

Furthermore, other authors have developed decisions support systems to make companies realize that CSR benefits go beyond reputational building to achieving business goals and contribution to sustainable development (Esteves, 2008), and guidelines to enable companies to operate sustainably (Hilson and Murck, 2000). Finally, Dashwood (2007) also showed how two major mining companies disseminated
progressive norms in the name of CSR before it became commonly associated with mining firms. In general, these prior researches on CSR in mining have generally addressed its developments and implementations, however, none have investigated the informative nature of gold mining companies CSR disclosures or reporting. The aim of this study is to determine the disclosure level of CSR information by gold mining companies. The top ten gold-mining firms ranked according to their market capitalization (value of a company’s equity) as rated by business yahoo (on November 10, 2010) are used as a proxy for gold mining companies. These multinational companies have operations across the continents and 70% of them have their headquarters in North America (Table 2-3). The objectives of the study are to:

- Identify the CSR themes in the sustainability reports of gold mining companies
- Evaluate the disclosure levels of CSR information in the sustainability reports
- Assess the factors that determine the disclosure level of CSR information

2.7 Methods

CSR themes of the top ten gold mining companies were derived by content analysis of public disclosure documents that are available on their corporate websites. However, the operationalizations of the claimed CSR practices were not analyzed. Most
Table 2-3: Selected characteristics of the top ten gold mining firms

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Capitalization ($billion)</th>
<th>Annual Gold Production (Ounces (million))</th>
<th>Corporate Headquarters</th>
<th>Locations of Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrick Gold</td>
<td>50.2</td>
<td>7.616</td>
<td>Canada</td>
<td>Tanzania, Australia, Papua-New Guinea, Peru, Chile, Argentina, USA, Canada</td>
</tr>
<tr>
<td>Gold Corp</td>
<td>34.1</td>
<td>2.484</td>
<td>Canada</td>
<td>USA, Canada, Mexico, Argentina, Chile, Guatemala, Dominican Republic</td>
</tr>
<tr>
<td>Newmont Mining</td>
<td>30.9</td>
<td>6.860</td>
<td>USA</td>
<td>USA, Australia, Peru, Indonesia, Ghana, Canada, New Zealand, Mexico</td>
</tr>
<tr>
<td>Kinross Gold</td>
<td>20.9</td>
<td>2.150</td>
<td>Canada</td>
<td>Canada, USA, Brazil, Chile, Ecuador, Russian Federation</td>
</tr>
<tr>
<td>AngloGold Ashanti</td>
<td>17.9</td>
<td>4.752</td>
<td>South Africa</td>
<td>USA, South Africa, Namibia, DR Congo, Ghana, Guinea, Mali, Tanzania, Australia, Argentina, Brazil, Colombia</td>
</tr>
<tr>
<td>Compania Mina Buenaventura</td>
<td>13.6</td>
<td>0.423</td>
<td>Peru</td>
<td>Peru</td>
</tr>
<tr>
<td>Agnico-Eagle Mines</td>
<td>13.4</td>
<td>0.476</td>
<td>Canada</td>
<td>Canada, Finland, Mexico, USA, Argentina</td>
</tr>
<tr>
<td>Gold Fields</td>
<td>11.9</td>
<td>3.952</td>
<td>South Africa</td>
<td>South Africa, Ghana, Australia, Peru</td>
</tr>
<tr>
<td>Eldorado Gold</td>
<td>9.8</td>
<td>0.356</td>
<td>Canada</td>
<td>China, Turkey, Brazil, Greece</td>
</tr>
<tr>
<td>Yamana Gold</td>
<td>8.7</td>
<td>1.259</td>
<td>Canada</td>
<td>Brazil, Chile, Argentina, Mexico, Columbia</td>
</tr>
</tbody>
</table>

of the previous studies outlined above have used the method of content analysis to examine the information in similar public disclosure documents as proxies for measurement of CSR activities by firms. Krippendorff (1980, p. 21) defines content analysis as “a research technique for making replicable and valid inferences from data according to their context”. These inferences could be in various qualitative and/or quantitative groups (themes or categories) that would depend upon the adopted criteria (Weber, 1988). The subjective nature of this methodology weakens its reliability and replicability. Generally, subjectivities were reduced in previous works by the use of multiple coders who would show less discrepancy in outcome of their inferences or where discrepancies were present, their work were re-analyzed to resolve the difference (Markus et al., 1999). Alternatively, reliability of this technique by single coders can be established after the coders have undergone a sufficient period of training after which the reliability of their coding decisions on a pilot sample would be established (Markus et al., 1999). Another constrain of this technique is the reliability of the coding instrument in terms of the specifics of the decision categories and rules for coding. In order to reduce subjectivity in this work, the author carried out extensive training on a pilot sample before conducting the final analysis. A modifying version of indexing technique by Wiseman (1982) and Hughes et.al (2001) was employed in the identification and codification of the CSR themes. The contents of each company’s public disclosure documents such as financial disclosures, sustainability reports, environment reports and citizenship reports published on its website were manually analyzed to identify the themes of CSR. During the analysis, the list of the previously identified CSR themes was
updated whenever a new CSR theme was identified in the disclosures of other companies. The descriptions of the ten identified CSR themes are presented in Table 2-4. Secondly, based on the amount of quantitative information disclosed about the CSR themes, a codification process was carried out to determine the sustainability reporting levels by the firms. According to Al-Tuwajir et al. (2004), a quantitative disclosure is more objective and informative to stakeholders than qualitative information. This implies that the more quantitative information exists in a firm’s social responsibility disclosure, the higher its social disclosure level and vice versa. To codify the CSR themes, weights were assigned to each theme similar to the definition by Liu and Anbumozhi (2009) as listed in Table 2-5. The weights in a decreasing order of disclosure levels are 5, quantitative; 3, qualitative; and 1, no information (Liu et al., 2009; Hughes et al., 2001; Wiseman, 1982). The weighted themes were then aggregated into a disclosure score for each CSR theme and company.

### 2.8 Results

The matrix of the CSR themes identified in the social responsibility disclosures of the mining firms is an indication of an industry-wide sustainability reporting practice (Table 2-6). However, the number of disclosures differs widely across firms. For example, all the ten firms disclosed information related to the environment (ENV), economic (ECO) and social (SOC) themes of CSR (Table 2-6). In addition, eight out of the ten companies reported about their accountability and transparency practices (ACT),
**Table 2-4: Description of the CSR themes of the top ten gold mining firms**

<table>
<thead>
<tr>
<th>Corporate Social Responsibility Theme</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>Environmental monitoring, waste, water, energy, air, noise and tailings management, rehabilitation and revegetation practices, environmental management systems certification and environmental impact assessments</td>
<td>ENV</td>
</tr>
<tr>
<td>Economy</td>
<td>Annual profits and gold production disclosures</td>
<td>ECO</td>
</tr>
<tr>
<td>Anti-corruption</td>
<td>Anti corruption policies, monetary and non-monetary anti-corruption issues</td>
<td>COR</td>
</tr>
<tr>
<td>Community governance empowerment</td>
<td>Training, capacity building and empowerment of immediate communities to enable them be effective participants in democratic accountability in decision making about gold mining. Examples include policies and implemented programs in adult education, negotiation skills etc</td>
<td>GOV</td>
</tr>
<tr>
<td>Accountability and transparency</td>
<td>Public reporting on environmental impacts, accidents, incidents and other internal and external impacts that are or could be of interest to stakeholders</td>
<td>ACT</td>
</tr>
<tr>
<td>Lobbying</td>
<td>Disclosure of lobbying activities of firms including monetary expenses</td>
<td>LOB</td>
</tr>
<tr>
<td>Human Rights</td>
<td>Signatory to global anti-human rights policies and safeguard employees and other people, health and safety actions programs and training of professional on health and safety practices</td>
<td>HUR</td>
</tr>
<tr>
<td>Culture</td>
<td>Indigenous people policies to protect the culture of the indigenous community disclosure</td>
<td>CUL</td>
</tr>
<tr>
<td>Security</td>
<td>Security measures at firm level and training of securities to integrate company policies into their job practices. Specific items include rules of engagement with the public, the use of force, the application of less lethal force, transparency in security agreements and contracts</td>
<td>SEC</td>
</tr>
<tr>
<td>Social disclosure</td>
<td>Social/community policy, contributions to community life (schools, community) support of non-mining training programs, support of local business development, charitable giving, employment of local workforce, compensation system for affected communities and their social contribution to the immediate mining communities.</td>
<td>SOC</td>
</tr>
</tbody>
</table>
**Table 2-5:** Levels of disclosure and corresponding weights

<table>
<thead>
<tr>
<th>Quality of disclosure</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative information</td>
<td>5</td>
</tr>
<tr>
<td>Qualitative information</td>
<td>3</td>
</tr>
<tr>
<td>No information</td>
<td>1</td>
</tr>
</tbody>
</table>
six companies disclosed their human rights practices (HUR) and five companies reported about their culture sensitivity practices (CUL), (Table 2-6). In general, the companies were selective in the CSR themes that they disclosed. Table 2-7 presents the disclosure levels (quantitative, qualitative or no-information) of the CSR themes that were reported by the top 10 gold mining firms. This disclosure levels also varied across the gold-mining firms. For example, the ECO theme obtained the quantitative weight of five from each of the ten firms to make a perfect total score of 50 (Table 2-7). This implies that one hundred percent of the firms disclosed quantitative information related to the ECO theme (Figure 2-2). Similarly, the ENV theme with a total score of 42 is the next CSR theme with most score (Table 2-7). This disclosure score was because of the quantitative disclosures by sixty percent (60%) of the firms and qualitative disclosures by forty percent (40%) of the firms (Figure 2-2). Finally, the lobbying theme (LOB) with a total score of sixteen was the least disclosed CSR theme (Table 2-7). This lowest score was aggregated from the quantitative and qualitative disclosures by ten percent (10%) of the firms respectively, and “no information” disclosure by eighty percent (80%) of the firms (Figure 2-2). There were also variable percentage of firms that disclosed about the CSR themes COR, GOV, ACT, HUR, CUL, SEC and SOC as illustrated in the Figure 2-2. Overall, on the average, only ten percent (10%) of the firms disclosed quantitative information, 30% disclosed qualitative information and sixty percent (60%) disclosed no information about their CSR practices (Figure 2-2).
Table 2-6: CSR themes present in the public disclosure documents of the top ten gold mining firms

<table>
<thead>
<tr>
<th>Theme</th>
<th>Barrick Gold</th>
<th>Gold Corp</th>
<th>Newmont Mining</th>
<th>Kinross Gold</th>
<th>AngloGold Ashanti</th>
<th>Compania Mina Buenaventura</th>
<th>Agnico-Eagle Mines</th>
<th>Gold Fields</th>
<th>Eldorado Gold</th>
<th>Yamana Gold</th>
<th>Total number of companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment; ENV</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Economic; ECO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Anti-corruption; COR</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Community governance empowerment; GOV</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Accountability and transparency; ACT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Lobbying; LOB</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Human rights; HUR</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Culture; CUL</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Security; SEC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Social disclosure; SOC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td><strong>Total number of CSR themes disclosed</strong></td>
<td><strong>9</strong></td>
<td><strong>7</strong></td>
<td><strong>10</strong></td>
<td><strong>6</strong></td>
<td><strong>8</strong></td>
<td><strong>4</strong></td>
<td><strong>3</strong></td>
<td><strong>7</strong></td>
<td><strong>3</strong></td>
<td><strong>3</strong></td>
<td><strong>30</strong></td>
</tr>
<tr>
<td>Corporate Social Responsibility Theme</td>
<td>Barrick Gold</td>
<td>Gold Corp</td>
<td>Newmont Mining</td>
<td>Kinross Gold</td>
<td>AngloGold Ashanti</td>
<td>Compania Mina</td>
<td>Agnico-Eagle Mines</td>
<td>Gold Fields</td>
<td>Eldorado Gold</td>
<td>Yamana Gold</td>
<td>Total for each CSR theme</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>-------------</td>
<td>-----------</td>
<td>----------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>---------------</td>
<td>--------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Environment; <strong>ENV</strong></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>Economic; <strong>ECO</strong></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>Anti-corruption; <strong>COR</strong></td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Community governance empowerment; <strong>GOV</strong></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Accountability and transparency; <strong>ACT</strong></td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>Lobbying; <strong>LOB</strong></td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Human rights; <strong>HUR</strong></td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>Culture; <strong>CUL</strong></td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Security; <strong>SEC</strong></td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Social disclosure; <strong>SOC</strong></td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>38</td>
</tr>
<tr>
<td><strong>Total disclosure by each firm</strong></td>
<td>40</td>
<td>30</td>
<td>40</td>
<td>28</td>
<td>34</td>
<td>22</td>
<td>20</td>
<td>30</td>
<td>16</td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>

5= quantitative information; 3=qualitative information, 1= no information
Figure 2-2: The level of detail of CSR themes disclosed by the firms
Table 2-7 shows significant differences in the disclosure levels of the gold mining firms across the CSR themes. For example, Yamana Gold’s total disclosure score of twenty consists of quantitative disclosures (weighted 5) about the CSR themes ENV and ECO, qualitative disclosure (weighted 3) about the Social theme (SOC) and “no-information” disclosure (weighted 1) about the themes of COR, GOV, ACT, LOB, HUR, CUL and SEC. Each of the firm exhibited different disclosure pattern. Based on the relevance of quantitative information to stakeholders established by Al-Tuwaijir et al. (2004), this study asserts that the higher the disclosures score of a mining company, the higher its sustainability disclosure level and vice-versa. Barrick Gold and Newmont Mining who had the total disclosure score of forty (40) each were the firms with the highest disclosure levels while Eldorado Gold with the disclosure score of sixteen (16) was the firm with the least disclosure level (Table 2-7). Between this highest and lowest disclosure firms, the remaining firms disclosures levels decreased in the order: AngloGold Ashanti, GoldCorp and Goldfields, Kinross Gold, Compania Mina and Agnico-Eagles Mines, and Yamana Gold (Table 2-7).

The characteristic of the gold mining firms in Table 2-3 suggest those factors that affected the observed disclosure levels. The gold mining companies with operations in the countries where their corporate headquarters are located showed higher disclosure levels than companies that do not have operations in countries where their corporate headquarters are located. For example, the top five firms with the highest disclosure levels (Barrick Gold, Newmont Mining, Anglo gold Ashanti, Gold Corp, Goldfields)
have operations in the countries where their corporate headquarters is located. On the other hand, the companies with the lowest disclosure levels (Yamana Gold, Eldorado Gold) have no operations in the countries where their corporate headquarters are located. In addition, except for Goldfields, all the top five firms (Barrick Gold, Newmont Mining, Anglo gold Ashanti, Gold Corp) with the highest disclosure levels have wider areas of operations across the globe. For example, Gold Corp has operations in North America (USA, Canada, and Dominican Republic), South America (Mexico, Argentina, Chile, and Guatemala). Similarly, Anglo Gold Ashanti has operations in North America (USA), Africa (South Africa, Namibia, DR Congo, Ghana, Guinea, Mali, and Tanzania), Oceania (Australia) and South America (Argentina, Brazil, and Colombia). Comparatively, the companies with the lower disclosure levels (Yamana Gold, Eldorado Gold) have narrow global coverage across the continents. For example, Yamana has operations only in South America (Brazil, Chile, Argentina, Mexico, Colombia) and Eldorado Gold has operations in Asia (China), Europe (Greece, Turkey), and South America (Brazil).

2.9 Discussion

The findings in this research demonstrate that gold mining companies can improve upon their sustainability reports by the disclosure of wide range of CSR themes. The results allow pointing out that a sustainability report aimed at the provision of relevant information to stakeholders should not only report the degree of commitment to CSR themes. However, an informative stakeholder sustainability report is conditioned on
higher levels of disclosure (quantitative information) across all CSR themes. This study revealed that most gold mining companies report their sustainability practices qualitatively but the numbers of CSR themes that they disclose differ widely across the companies. This is consistent with the findings reported by Jenkins and Yakovleva (2006) who showed evidence of increasing social and environmental disclosure by mining with considerable variation in the reporting content and styles. While confirming the findings of the previous study, this study also shows that, the mining companies are reluctant to present their CSR information in quantitative terms, the most efficient way to communicate sustainability performance data. This finding is in accordance with Bollough and Johnson, 1995; Harte and Owen, 1991 who revealed that companies still provide little detail information in their CSR disclosure and when they do, it is often qualitative and not quantitative.

By the comparison of the characteristics of the gold mining firms vis-à-vis their sustainability reports, this study revealed the reasons that governed the different sustainability disclosure levels by gold mining companies. The findings suggest that mining companies with operations in the countries where they are corporate headquartered disclosed detailed information in their sustainability reports than their counterparts with operations in countries that differ from where they are headquartered. The top ten gold mining companies are mostly headquartered in developed countries of USA and Canada and historical “giant” mining nation of South Africa who have specific legislations and requirements for disclosure of corporate sustainability practices. This
was confirmed by KPMG in a related survey study of corporate governance disclosure by mining companies. According to KPMG (2003), 100% of the mining companies from Australia, Canada, South Africa, US and the UK reported their corporate governance practices compared to the 50% of companies from the “Other” countries. These differences were due to the corporate governance disclosure requirements in the countries (KPMG, 2003). Moreover, in the corporate headquartered countries, there are regulatory enforcements and prosecutions of violations unlike in the “Other” countries (developing countries) such regulatory mechanisms remain only requirements on paper. These assertions are consistent with Hope’s (2003) study that showed disparity in regulatory enforcement levels between developed and developing countries; the former has higher enforcement level relative to the latter. Also, there are powerful and influential organizations who are watching the activities of firms in the corporate headquartered countries compared to the “Other” countries. These organizations are mostly non-profit environmental and corporate watchdog groups who have effective political representation that makes their concerns and demand be heard (Kapelus, 2002) in these corporate headquartered countries.

The global number of operations the companies increased with their social responsibility disclosure levels. The non-profit organizations in countries were corporations are headquartered have established networks of opposition to mining with the civic societies in the “other” countries. Such collaborations have led to significant disruptions in the operations of mining companies because the civic societies of “Other”
countries have been empowered about the negative effects of mining through the networks. Further, a mining company with wider global operations is more likely to face more global oppositions from different local communities than a company with limited global operations. Hence, the knowledge and experience that mining companies faced from such opposition influenced the number of CSR themes that they disclosed.

2.10 Conclusion

The historic negative environmental and social impacts of gold mining coupled with the enhanced gold production by heap leaching recovery method have dominated the global discourse about the sustainability of the gold mining industry. The advance in social networking via the internet further disseminates the discourse such that local events related to gold mining impacts easily gain global audience. Mining operations that lack sustainability mechanisms will be affected by reputational damage and decrease in the confidence of its shareholders. In response, the corporate gold mining firms are also using the global networking capabilities of the internet via their websites to publish their social responsibility reports. These reports remain important source of information to shareholders and the wider public about the sustainability performance and strategy of a firm towards sustainable development from the content of the disclosure.

This work presented here analyzed the content of the sustainability reports of the top ten gold mining companies ranked according to their market capitalization to identify the CSR themes that gold mining companies disclose. Additionally, it identified the quality
(quantitative or qualitative) of the disclosed CSR themes to measure the disclosure level (detail) and the factors that govern it.

Generally, the companies disclosed CSR themes that covered the environmental, economic and social aspects of sustainability. However, each company disclosed varied number of CSR themes, which suggests selective disclosure practices by the mining companies. Furthermore, the sustainability transparency of the gold mining industry was questionable due to the level of CSR detail they revealed in their disclosures. This is evidenced by the abundant qualitative disclosure of their CSR practices even though quantitative information is more objective and informative to stakeholders than qualitative disclosure.

Gold mining companies can improve the credibility of their sustainability reports by the quantitative disclosure of the information related to their sustainability practices. In addition, the quantitative disclosures need to be across all the CSR themes for a holistic sustainable mineral development to be achieved. Nevertheless, this study has some limitations. The sample size of the top ten gold mining companies ranked according to their market capitalization as proxy for global gold mining companies and research data derived solely from the one year annual sustainability report of these companies were inadequate to generalize the conclusion of the study. Moreover, the operationalization and the effectiveness of the sustainability claims were not evaluated. Therefore, a further research would be required. For instance, a future study could explore the evolution of gold mining firms level of sustainability reporting by increasing
the sample numbers from ten to fifty and data source from their 5-10 year annual sustainability reports. Another research area of interest is the field survey of the mining host communities to establish how operational the companies sustainability practices work on the ground.
References


Castro, SH., Sanchez, M. (2003). Environmental viewpoint on small-scale copper, gold and silver mining in Chile. *Cleaner Production, 11* (2), 207–213. doi.org/10.1016/S0959-6526(02)00040-9,


Leduc, G., Pierce, RC., McCracken, IR. (1982). *The effects of cyanides on aquatic organisms with emphasis upon freshwater fishes*. Publ NRCC 19246. Natural Resources Council of Canada, Ottawa


CHAPTER 3
ANALYSIS OF CODES AND INITIATIVES OF RESPONSIBLE GOLD MINING

Abstract
Globally, gold mining companies have adopted and implemented numerous voluntary codes and initiatives aimed at responsible operations in mining host communities. These responsible gold mining codes and initiatives are expected to address the concerns and expectations of these communities for successful mining operations. This study aimed to evaluate at the global scale, the extent to which gold mining companies responsible mining codes and initiatives address the concerns and expectations of mining host communities. It employed the research methodology of content analysis to identify and rank the themes of responsible gold mining codes and initiatives that are available on the responsible gold mining website. The results revealed five gold mining sectors with twenty codes and initiatives that covered ten responsible gold mining themes. Generally, the three most prioritized themes were related to environmental, social and labor issues while the least ones were related to issues concerning the culture of the local communities and anticorruption issues. A second content analysis was conducted on ten-year community news articles, which are available on a different database. This determined the mining host communities concerns and expectations about gold mining operations, and categorized them based on the responsible gold mining themes. The result showed that the local communities top three concerns and expectations about gold mining practices were related to environmental, human rights and corporate accountability
issues. However, their three least prioritized concerns and expectations were related to labor issues, community empowerment and governance, and social practices. Furthermore, an analysis was conducted to determine the compatibility of the gold mining industry’s and local mining communities responsible gold mining themes. The result showed mis-match between the two. This study concluded that the mining industry’s adoptions of the responsible gold mining codes and initiatives were not aimed at addressing community concerns due to the non-compatibility. The gold mining industry needs to incorporate community concerns and expectations early in the planning of these codes and initiatives for successful mineral development.
3.1 Introduction

Globally, mining companies are conducting their operations in a social and environmentally friendly manner to demonstrate responsibility that is consistent with international ethical standards (Hamann, 2003; Elkington et al., 2001). Generally, these are part of the Corporate Social Responsibility (CSR) initiatives of mining companies. The responsible mining strategies gained impetus because mining firms have realized that single local event such as an opposition to the operations of a mine by local stakeholders can easily became a global event due to the interconnectedness of the world via cell phones, social media networks and others (Humphreys, 2000). This kind of “global exposure” of mining firms can seriously affect their reputation and viability. Moreover, there is growing awareness of the potential social, human rights or environmental impacts of corporate mining activities. As such, operational governments of resource rich nations have national, regional and local laws that mining companies have to comply with in order to address these negative impacts (Danielson and Lagos, 2001). Such governments also ensure that corporations comply with the relevant international conventions or treaties related to gold mining operations to which the country is signatory. Aside from these, there are sets of binding norms, and voluntarily CSR codes and initiatives that the international institutions of the gold mining sector have adopted in their quest to be responsible. Mining companies have adopted and implemented these codes and initiatives in response to stakeholder pressures and demands to demonstrate their contributions to the sustainable development of their host communities. In addition, by this practice, the mining companies hope to gain the social licenses to operate in harmony with their host
communities. However, the proliferation of these codes and initiatives are still a challenge to corporate gold mining since most of the companies that have adopted and implemented them still face oppositions from their local stakeholders. Gold mining stakeholders termed such practices by mining firms as “green washing”, meaning the companies project caring images without any significant mitigation measures. Such a stakeholder position raises questions about the constituents of these codes and initiatives, and the possibilities for improvement.

3.2 Drivers of CSR Engagement and their Implications

The drivers of corporate responsible gold mining include the following:

- **Conditions for Project Finance**: Mining is a capital-intensive business; therefore, companies seek support from financial institutions. Corporations are required to meet sets of environmental and social conditions before they can access loans and other services. Good performers have access to credit, whereas bad performers do not. For example, the World Bank (WB) and its agencies, particularly the International Finance Corporation (IFC), require borrowers to be complaint with their wide range of internal policies, including the IFC performance standards, and certain quantitative performance measures and standards (commonly referred to as “conditionality”). For the extractive industry, the gold mining corporations in this case, the IFC sustainability policy has specific provisions for environmental, health and safety
guidelines and technical requirements that have to be satisfied before the finance for
development projects are approved, and negotiated installment issued. In addition, the
Canadian International Development Agency (CIDA) reduces funding to a project
with demonstratable risk for adverse developmental impacts. Similarly, Export
Development Canada (EDC) assesses the potential negative environmental and social
effects of a proposed project before it would provide its finance and risk management
services

- **Market Based Incentives-Transparency and Disclosure:** Investors, insurers,
consumers and other market actors before conducting business with companies
inquire reliable information about how companies manage their environmental and
social impacts (CSR performance). Such disclosures can help companies to
understand the value of CSR to their business and to manage it more openly and
systematically. These market actors also require transparency in CSR related issues
such as the carbon disclosure (green house gas emissions), and government revenue
and company payments associated with gold production. Gold supply chain groups
such as the Council for Responsible Jewelry Practices (CRJP) promote transparent
and accountable business practice from the mine to retail through strict risk
assessment and disclosure requirements on any member company that wants to trade
in a specific country

- **Market based Incentives-Responsible Investment:** This is the integration of CSR
considerations into traditional investment decision-making and ownership processes
such that environmental and social conditionality are applied to an equity investment. Investors may have a responsible investment policy based on financial reasons (examples: financial risk, enhance profits, environmental and political risk insurance) and moral considerations such as ethical funds. For example, large institutional investors such as pension funds that account for one-third of the world’s invested assets and often-major shareholders of mining companies could influence corporate direction through shareholder resolutions and engagement to implement CSR policy.

- **Legal liability:** These are penalties that impose costs for corporate conducts that violate norms established in national and international laws. Such corporate criminal liability will be imposed on companies through civil litigations due to their unsustainable social and environmental operation (CSR Extractive Sector roundtable, 2006; Warhurst, 1998).

Generally, all the motives listed above are “systematic” requirements that mining companies need to satisfy in order to operate successful, and they have indeed developed mechanisms to address them. Currently, the “unsystematic” requirements such as the demands, expectations and aspirations from Non-Governmental Organizations (NGO) and local indigenous communities have significantly affect the success of gold mining projects. For example, recently, the residents of the northern city of Cajamarca in Peru staged a protest against Buenaventura’s proposed $4.8 billion Conga gold mine due to an environmental dispute (Els, 2011). Even though the Conga project would be the biggest investment ever in Peru, the locals oppose it because the project involves moving the
water from four lakes located high in the mountains into reservoirs the company would build. The locals claim that the reservoirs will not replace the lake that also provides ground water for agriculture and raising livestock (Els, 2011). These requirements were strengthened by the partnership between the NGOs of some developed and local communities of resource-rich nations in developing countries to demand ethical justice in developing mineral resources. Gold mining is a “dirty business” (Liu, 2009) whose nature and magnitude result in an enormous strain on the local environment, communities infrastructures and existing social and physical infrastructure (Gifford et al., 2009). Corrupt practices are pronounced in mineral-rich developing countries particularly the cash-starved host countries with lax legal frameworks for mining. Mining companies are pressed to address their impacts on life, non-operational consultations and partnerships with local communities and lack of accountability and disclosure about issues concerning their operations that are of interest to the public (Newenham-Warhurst and Mitchell, 2000). For example, citizens of parent countries of multinational gold mining companies, whether acting individually or through NGOs, have become increasingly adversarial about the excessive influence of public policy by multinational gold corporations (Imbun, 2007). Again, this concern is on the increase due to the improvement of global networks such as the internet, globalization of the mass media and proliferance of goodwill-oriented NGOs (Bowen et al., 2010; Waddock, 2008). Hence, a mining related event or concern can easily become a global one and affect the profitability of companies. This exerts great pressure on the mining industry both directly through actions against their facilities that delay production and campaigns directed at shareholders and consumers as
well as indirectly via the political system such as bad press (Kapelus, 2002). Moreover, the profitability of mining companies will be questionable if they fail to address the social and ecological issues of these local communities within their concession (Newenham-Kahindi and Beamish, 2010).

### 3.3 Gold Mining Operations and Local Community Risk

The gold mining industry contributes significantly to the national economies of their host countries through budget and export revenues, employment, infrastructure developments and much more. Nevertheless, mining companies have also provoked local communities reactions to their operations. Local communities often oppose mining operations due to negative impacts such as disruption and contamination of river flows, degradation of land and forest resources, human rights abuses, impacts on livelihoods of local communities around mines and disturbance of traditional lifestyles (Yakovleva, 2005). Most of these impacts are especially prominent in local communities of developing countries relative to that of a developed country, because the latter are able to make their demands heard due to the availability of resources, better organization and effective political representation (Kapelus, 2002). Currently, non-profit organizations more specifically environmental and corporate watchdog groups are collaborating with other civic society groups in developing countries. Established NGOs in the developed world have collaborated with organizations and local communities in the developing world to establish networks of opposition to mining or specific issues about mining
operations. There is an increased activism by such local communities who are frequently among the groups most directly and adversely affected by mining activities. Local communities are challenging mining companies on a wide range of issues such as profit-flows, headquarters decision-making procedures, representation on the company board, rights to extract minerals, compensation measures, reporting procedures, environmental impacts and long-term strategies due to the increase in their organizational capacity. Moreover, almost every aspect of a mining business is been scrutinized from a social responsibility perspective due to large mining opposition networks. Members of these networks share their experiences and strategies in dealing with gold firms such as negotiation between mining firms and locals, compensational issues and other important services relevant to local communities even if they are been held on another continent. The operational strategies used in reaching deals struck between one group and mining companies are used as reference points or benchmarks for other groups. These efforts of the local communities have led to the global recognition of their concerns by international bodies and international organizations such as International Labor Organization (ILO), United Nations Human Rights Commission (UNHCR), and pro-business organizations such as World Business Council for Sustainable Development (Kapelus, 2002; Gifford and Kestler, 2010). In addition, there are numerous international treaties and agreements by Transnational Corporations (TNCs) with respect to their social and environmental impacts aimed to promote responsible operations. These continuous pressures from local community groups have resulted in increased concerns about mining firms activities from regional, national and foreign politicians and shareholders. Hence,
mining firms have developed, adopted and implemented several voluntary practices that are consistent with CSR. Surprisingly, with the advancement of the programs and projects that have significantly contributed to the global CSR initiatives, mining firms still face community opposition to their operations. These oppositions have resulted in a “fragile social license” of mining firms in their areas of operations. It is noteworthy that the terms for the social license enforced through threat of adverse publicity or complaints to regulators are more demanding than those of prescribed legal licenses (Thornton et al., 2003) and could swing public opinion against the industry. Therefore, corporations are expected to develop strategies to secure their social license to operate since the local communities are the most impacted directly by mining operations with the most credible claims. Now, the basic question is whether the current global CSR objectives of gold mining firms are effectively compatible with development objectives and concerns of the local communities. Therefore the related unanswered questions are:

1. What themes of responsible gold mining do the current corporate codes and initiatives adopted by gold mining firms address and how are they prioritized?

2. What are the concerns of local communities about the operations of a mine?

3. To what extent do the concerns of local communities match the scope of corporate codes and initiatives?

This study examines the global responsible gold mining codes and initiatives, and local community concerns about the operations of goldmines to answer these questions.
3.4 Methods

The data source for the study was the responsible gold mining website, a gold information database provided by the world's premier gold producers (Responsiblegold.org, 2010). The webpage has a list of the responsible gold mining (RGM) codes and initiatives, which are voluntary commitments by mining stakeholders aimed at responsible mining practices and sustainable development. There are twenty codes and initiatives of RGM categorized into six sectors of International compacts, Mining industry initiatives, Financial sector initiatives, Corporate initiatives, Jewelry sector initiatives (Appendix 1). Even though the scope of these codes and initiatives varies, they generally integrate environmental, social and economic principles about gold mining (Responsiblegold.org, 2010). A content analysis of the twenty codes and initiatives revealed various RGM themes. By a scoring methodology, each of the six categories of the codes and initiative was evaluated against the presence of each of the RGM themes. A score of “1/yes” and “0/No” indicates the presence and absence of RGM themes in a particular code and initiative respectively. After each individual code and initiative was quantified, the aggregate score for each sector was determined. Moreover, the aggregate scores of the RGM themes across the sectors were determined and used to measure their strengths. An arbitrary strength value ranging from 10 to 1 was assigned to the aggregated values in order of decreasing strength such that 10 is the strongest and highest single score while 1 is the weakest and the lowest single score.
A second content analysis was carried out on newspaper articles related to local communities concerns and expectations about gold mining that is available on the mines and communities (MAC) website. Mines and communities (MAC) is an organization formed and mainly funded by several community based and charitable organizations to demand greater accountability and transparency on the part of the minerals industry (MAC, 2010). This webpage exposes the social, economic, and environmental impacts of mining, particularly as they affect indigenous and local mining communities globally or their major concerns and expectations about the operations of local gold mining companies (MAC, 2010). Three hundred forty six (346) gold mining news articles from the year 2001 to 2010 were downloaded and analyzed. Some of the news articles were in languages other than English such as Spanish, Portuguese and French due to the global coverage of the numerous mining affected communities. However, only articles written in English and the translated versions of the non-English news articles that are available on the website were used in this study. Each article was categorized into each of the same ten themes of RGM identified above. The tally of articles under each theme was then aggregated into a score. Strength values ranging from 10 to 1 in order of decreasing aggregated scores were then assigned to the RGM themes. Finally, the strength the RGM themes related to the codes and initiatives were compared to the strength of RGM themes related to the concerns of the communities.
3.5 Results

The description of the five mining industry sub-sectors and the themes of RGM are presented in Tables 3-1 and 3-2 below. In the original list of RGM codes, there were six sectors (Appendix 1), however, this was regrouped into five sectors to aid data interpretations. The jewelry and corporate sectors initiatives were integrated and renamed as the corporate initiative, and the “other” sector renamed transparency and reporting. Moreover, the matrix of the scores is displayed in Table 3-3. There are 20 subsectors under the five gold mining sectors: international compacts, transparency and reporting, financial, mining and corporate. The scopes of the sectors are generally spread across all the ten identified RGM themes as shown by the spread of the 1’s in the matrix (Table 3-3). Table 3-4 is an extract from the matrix of the scores in Table 3-3 that shows the strength of the RGM themes. Overall, the contributions of the sectors to RGM themes based on their total scores decreased in the order: mining (29), international compacts (9), financial (8), transparency and reporting (7) and corporate (6), (Table 3-3). In terms of the strengths of the RGM themes, the environment (ENV) is the most dominant theme (strength=10) while anti-corruption (COR) and culture (CUL) with strengths of 3 each are the least dominant themes (Table 3-4). Moreover, only the ENV theme was present across all the five sectors of codes and initiatives. On the other hand the themes of labor rights (LAB), social disclosure (SOC), accountability and transparency (ACT), security (SEC), human rights (HUR), economic (ECO), community governance (GOV)
**Table 3-1: Descriptions of the five sectors of codes and initiatives**

<table>
<thead>
<tr>
<th>Sectors of Codes and Initiatives</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Compacts</td>
<td>A partnership involving nine corporate mining firms (e.g. AngloGold Ashanti, Barrick Gold), United Nations (UNEP), worldwide fund, Oxfam, US and UK government, NGOs, labor and financial institutions, and other NGOs, organizations, and mining companies.</td>
</tr>
<tr>
<td>Transparency and Reporting</td>
<td>Initiatives by Members of International Council on Mining and Metals (e.g. AngloGold, Newmont, Placer Dome), UK government along with other financial institutions, International Standards Organizations (ISO), World Economic Forum.</td>
</tr>
<tr>
<td>Financial Sector Initiatives</td>
<td>Signatories to these initiatives are the World Bank and International Finance Corporation and, Major International Banks.</td>
</tr>
<tr>
<td>Mining Sector</td>
<td>Mineral Council of Australia and member companies, GRI and ICMM member companies, National Mining Association (NMA), USA, World Bank, ICMM, UNEP, DFID, and UNCTAD.</td>
</tr>
<tr>
<td>Corporate</td>
<td>Corporate and Site level sustainability reporting, Jewelers of America, Cartier, DTC, Rosyblue, ABN-AMRO, Signet, Tiffany, Zale, and numerous mining companies.</td>
</tr>
</tbody>
</table>
Table 3-2: Description of the responsible gold mining (RGM) themes

<table>
<thead>
<tr>
<th>Themes</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment; ENV</td>
<td>Environment issues: general environment, environmental management, Sustainable development</td>
</tr>
<tr>
<td>Economic; ECO</td>
<td>Economic Issues: materials stewardships, sustainable development, economic issues, profits of firms</td>
</tr>
<tr>
<td>Anti-Corruption; COR</td>
<td>Anti-corruption issues</td>
</tr>
<tr>
<td>Community governance empowerment ; GOV</td>
<td>Community participation, community issues, community and aboriginal outreach</td>
</tr>
<tr>
<td>Accountability and Transparency; ACT</td>
<td>Accountability and transparency, ethic and governance</td>
</tr>
<tr>
<td>Labor Rights; LAB</td>
<td>Labor rights</td>
</tr>
<tr>
<td>Human Rights; HUR</td>
<td>Human right issues</td>
</tr>
<tr>
<td>Culture; CUL</td>
<td>Protection of the culture of the indigenous people</td>
</tr>
<tr>
<td>Security; SEC</td>
<td>Security measures at the firm level</td>
</tr>
<tr>
<td>Social Disclosure; SOC</td>
<td>Sustainable development, human health improvement, social performance, poverty reductions, social responsibility, community development</td>
</tr>
</tbody>
</table>

Source: www.responsiblegold.org
Table 3.3: Matrix of responsible mining themes presence in the codes and initiatives of the various sectors

<table>
<thead>
<tr>
<th>Codes and Initiatives</th>
<th>Responsible Gold Mining (RGM) Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environment; ENV</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>International Compacts</strong></td>
<td></td>
</tr>
<tr>
<td>Global Compact</td>
<td>1</td>
</tr>
<tr>
<td>International Cyanide Management Code</td>
<td>1</td>
</tr>
<tr>
<td>Mine Certification</td>
<td>1</td>
</tr>
<tr>
<td>Evaluation Project (MCEP)</td>
<td></td>
</tr>
<tr>
<td>Voluntary Principles on Security and Human Rights</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Transparency and Reporting</strong></td>
<td></td>
</tr>
<tr>
<td>Extractive Industries Transparency Initiative</td>
<td>1</td>
</tr>
<tr>
<td>International Standard on Social Responsibility</td>
<td>1</td>
</tr>
<tr>
<td>World Economic Forum (WEF) Anti-Corruption Initiative</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Financial Sector Initiatives</strong></td>
<td></td>
</tr>
<tr>
<td>World Bank (WB) Safeguard Policies and Guidelines</td>
<td>1</td>
</tr>
<tr>
<td>Equator Principles</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2</td>
</tr>
</tbody>
</table>
### Table 3-3: Continued

<table>
<thead>
<tr>
<th>Codes and Initiatives</th>
<th>Responsible Gold Mining (RGM) Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environment; ENV</td>
</tr>
<tr>
<td></td>
<td>Economic; ECO</td>
</tr>
<tr>
<td></td>
<td>Anti-corruption; COR</td>
</tr>
<tr>
<td></td>
<td>Community governance; GOV</td>
</tr>
<tr>
<td></td>
<td>Accountability; ACT</td>
</tr>
<tr>
<td></td>
<td>Labor rights; LAB</td>
</tr>
<tr>
<td></td>
<td>Human Rights; HUR</td>
</tr>
<tr>
<td></td>
<td>Culture; CUL</td>
</tr>
<tr>
<td></td>
<td>Security; SEC</td>
</tr>
<tr>
<td></td>
<td>Social disclosure; SOC</td>
</tr>
<tr>
<td></td>
<td>Total Score</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mining Sector</strong></td>
<td></td>
</tr>
<tr>
<td>Minerals Council of</td>
<td>1 0 0 1 0 0 0 0 0 3</td>
</tr>
<tr>
<td>Australia (MCA)</td>
<td></td>
</tr>
<tr>
<td>Sustainability</td>
<td></td>
</tr>
<tr>
<td>Global Reporting Initiative</td>
<td>1 1 0 0 0 0 0 0 0 1 3</td>
</tr>
<tr>
<td>Towards Sustainable Mining</td>
<td>1 1 0 1 1 1 1 0 1 5 5</td>
</tr>
<tr>
<td>Sustainable Development Principles</td>
<td>1 1 0 0 0 0 0 0 0 1 3</td>
</tr>
<tr>
<td>ICMM Sustainable</td>
<td>1 1 0 1 1 1 1 0 1 8 8</td>
</tr>
<tr>
<td>Development charter</td>
<td></td>
</tr>
<tr>
<td>Protected Areas</td>
<td>1 0 0 0 0 0 0 0 0 0 1 1</td>
</tr>
<tr>
<td>Community Development</td>
<td>0 0 0 1 0 0 0 0 0 0 0 1</td>
</tr>
<tr>
<td>Good Practice Tools</td>
<td></td>
</tr>
<tr>
<td>Good Practice Website</td>
<td>1 1 0 0 0 0 0 0 0 1 1 1</td>
</tr>
<tr>
<td>Emergency Response</td>
<td>0 0 0 1 0 1 0 0 0 0 1 3</td>
</tr>
<tr>
<td>APELL Project</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>7 4 0 5 1 4 1 1 2 5 29</td>
</tr>
<tr>
<td><strong>Corporate</strong></td>
<td></td>
</tr>
<tr>
<td>Council for Responsible Jewellery Practices (CRJP)</td>
<td>1 0 0 0 1 0 0 0 0 1 3</td>
</tr>
<tr>
<td>Environmental Safety and Corporate Social Responsibility Reporting</td>
<td>1 0 0 0 0 1 0 0 0 1 3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2 0 0 0 1 1 0 0 0 2 6</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>16 7 3 6 4 8 4 3 5 9</td>
</tr>
</tbody>
</table>
Figure 3-4: Strengths of the RGM themes across the sectors of codes and initiatives of the mining industry

<table>
<thead>
<tr>
<th>Codes &amp; Initiatives</th>
<th>International Compacts</th>
<th>Transparency and Reporting</th>
<th>Financial Sector Initiatives</th>
<th>Mining Sector</th>
<th>Corporate Score</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment; ENV</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Economic; ECO</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Anti-Corruption; COR</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Community Governance; Empowerment; GOV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Accountability and Transparency; ACT</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Labor Rights; LAB</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Human Rights; HUR</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Culture; CUL</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Security; SEC</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Social Disclosure; SOC</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>
Table 3-5: Newspaper articles related to mining communities concern and expectation grouped by RGM themes

<table>
<thead>
<tr>
<th>Responsible Gold Mining (RGM) Themes</th>
<th>Frequency</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment; ENV</td>
<td>183</td>
<td>10</td>
</tr>
<tr>
<td>Economic; ECO</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Anti-Corruption, COR</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>Community Governance Empowerment; GOV</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Accountability and Transparency; ACT</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>Labor Rights; LAB</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Human Rights; HUR:</td>
<td>35</td>
<td>9</td>
</tr>
<tr>
<td>Culture; CUL</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Security, SEC</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td>Social Disclosure; SOC</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>
Figure 3-1: The level of importance of RGM themes to mining affected communities relative to that of the gold mining industry (Strength level: 10 = strongest; 1 = weakest)
and empowerment (GOV), anti-corruption (COR) and culture (CUL) were present across 4, 3, 2 and 1 sectors of the codes and initiatives (Table 3-4).

On the other hand, community concerns and expectations vary across the RGM themes (Table 3-5). The RGM theme ENV had the most counts (frequency = 183) and therefore the most dominant community concern and expectation (strength = 10). This newspaper articles regarding communities ENV concern and expectation were about five times more than that for HUR (frequency = 35), the second RGM theme of concern (strength = 9) to communities. The three RGM themes of least concerns to communities in decreasing order are SOC, strength = 3; GOV, strength = 2 and LAB, strength = 1. Finally, Figure 3-1 shows the comparisons of the RGM themes. Aside from the ENV theme, there was mismatch between the gold mining industry’s RGM themes and those related to community concerns.

3.6 Discussion

In this study, the five sectors of codes and initiatives show variations in the scope of their codes and initiatives for RGM. The mining sector’s score across the RGM themes was the highest compared to any other sector. For example, the mining sector’s RGM theme score was about three times more than that for the international compacts. This strong proactive voluntary practice by the mining sector confirms the findings reported by Hopwood’s (2009) who states that companies engage in extensive voluntary practice in seek of legitimacy and reputation. Overall, the gold mining industry demonstrates a sector-wide adoption of RGM practices as shown by the matrix of the RGM themes.
across the sectors. Indeed, the gold mining industry has realized the need to demonstrate responsible mining practices due to historical accounts of high-level risks that mining project face if they fail to do so. Historically, opposition to mining projects have led to blockades, vandalism and other acts of violence that eventually caused significant project delays and even closure of mining operations (Humphreys, 2000). Consequently, the mining industry has adopted RGM strategy to enable them work in harmony with their host communities and other stakeholders. The most dominant RGM theme of the mining industry is ENV due to the inherit impacts of gold mining on the environment. Moreover, it is the increased environmental concerns that have significantly contributed to the resistance to mining activities (Westphalem, 2012). The next dominant RGM theme of the mining industry is SOC. This confirms the findings of Westphalem (2012) that global mining companies have increasingly recognized the benefits of delivering sustainable benefits and improving the well-being of their local communities. The general inference from above is that the mining industry prioritized RGM themes in decreasing order of their capabilities to lower the risk to mining operations. Hence, the CUL and COR themes of RGM that are of least priority to the mining industry are of low risk to mining operations.

It is evident from the argument above that, in principle, operational codes and initiatives of responsible gold mining should address the concerns of local communities about mining operations. However, this study revealed otherwise due to the significant mismatch between the prioritizations (strengths) of the components of the RGM themes by the gold mining industry and the community concerns about the responsible practices
of gold mining operations. The strength of the ENV component of the RGM theme of the gold mining industry was strongly compatible with those of mining-impacted communities. However, generally, the strengths of all the other components of the RGM theme of the gold mining industry and mining-impacted communities were incompatible. The general weak compatibility in the RGM themes can be the major source of local oppositions to gold mining since the legitimacy of gold mining operations will always be ineffective if their voluntary practices fail to align with society’s concerns. It therefore suggest that the gold mining sector’s rational for adoption of codes and initiatives for responsible mining was to attain stability in the market independent of efficiency.

The assumption that signatory to a voluntary code and initiative demonstrates its implementation on the ground is a limitation to the findings of this study. While some companies may not adhere to the requirements of these voluntary codes and initiatives, others may have internal programs or develop a local community programs to demonstrate responsibility to its host community. Another weakness to this finding is the assumption that a ten-year community concerns derived from news articles available on the mines and communities website were adequate to demonstrate the irresponsible gold mining practices. This is because the rate of publications of news articles related to mining-impacted communities concerns about the operations of gold mining companies depends on local and global events.
3.7 Conclusion

The gold mining industry has developed and implemented numerous voluntary codes and initiatives for responsible mineral development. Despite these sustainability practices, local mining communities still oppose and disrupt mineral development operations. This raises questions about the effectiveness of the gold mining industry’s voluntary codes and initiatives vis-à-vis host mining communities concerns and expectations. This study analyzed the global responsible gold mining codes and initiatives to identify the targeted aspects (themes) of responsible gold mining. Additionally, it categorized mining communities concerns and expectations from mineral operations within the identified themes of responsible gold mining.

The result revealed that the gold mining codes and initiatives fall under five gold mining sectors and ten responsible gold mining themes. Nevertheless, there is a general incompatibility between the mining industry and communities responsible gold mining themes except for the environment theme. The top three prioritized RGM themes of the gold mining industry are related to environment issues, corporate social responsibilities and labor rights. The themes of least priority to the gold mining industry were related to protections of the culture of the mining host communities and anti-corruption. On the other hand, the top three local communities concerns and expectations from responsible mineral development operations are related to environment and human right issues, and accountability and transparency. The themes related to labor rights, community governance empowerment, and corporate social responsibilities are the least of local communities concerns and expectations.
For an effective voluntary codes and initiatives of responsible mining, this study recommends that gold mining industry needs to incorporate community concerns in the design of their codes and initiatives for responsible gold mining. This should start with an archival review of community concerns that relates to gold mining operations. However, fulfilling all the developmental needs of host mining communities are beyond the responsibilities of the gold mining industry.
References


Appendix 1: Responsible mining codes and initiatives

A. International compact

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Sponsor</th>
<th>Scope</th>
<th>Endorsements by</th>
<th>Responsible Mining Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mine Certification Evaluation Project(MCEP)</td>
<td>World Wildlife Fund, Oxfam Community Aid abroad and other NGO’s organizations and mining companies</td>
<td>Research project to investigate potential for certification of mining industry based on the 10 principles and 46 elements of the International Council for Mining and Metals(ICMM). Initially focused on Australia.</td>
<td>BHP Billiton, Newmont Mining, Placer Dome, Rio Tinto, WMC Resource</td>
<td>Environmental management, social performance</td>
</tr>
<tr>
<td>Voluntary Principles on Security and Human Rights</td>
<td>US and UK governments, NGO’s and mining companies</td>
<td>Likely to be incorporated into WB safeguard policy and Equator Principles.</td>
<td>Freeport Mc Moran, Rio Tinto, Newmont Mining</td>
<td>Security, human rights</td>
</tr>
</tbody>
</table>

B. Financial sector initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Sponsor</th>
<th>Scope</th>
<th>Endorsement</th>
<th>Responsible Mining themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Bank(WB) Safeguard Policies and Guidelines</td>
<td>World Bank and International Finance Corporation</td>
<td>Updates and new safeguard policies or guidelines expected on cyanide, tailing disposal, waste management, closure, ARD and submarine tailings, disposal, security, human rights, community roles in monitoring projects, core labour rights, and indigenous peoples rights</td>
<td>Projects with World Bank or International Finance Corporation. Applications to other projects through Equator Principles</td>
<td>Environmental management, security, human rights, community participation, labor rights, indigenous people</td>
</tr>
<tr>
<td>Equator Principles</td>
<td>Major International Banks</td>
<td>Incorporates WB safeguard policies for all projects greater than $50M</td>
<td>Leading financial institutions are signatories to these principles.</td>
<td>Community issues, environmental management</td>
</tr>
</tbody>
</table>
### C. Other initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Sponsor</th>
<th>Scope</th>
<th>Endorsement</th>
<th>Responsible Mining Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractive Industries Transparency Initiative</td>
<td>UK government along with other institutions such as the World Bank</td>
<td>“Publish What you pay” guidelines developed on payments made to companies to governments.</td>
<td>Members of ICMM including AngloGold, Freeport Mac Moran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Sustainable development, poverty reduction</td>
</tr>
<tr>
<td>International Standard on Social Responsibility</td>
<td>International standards Organization(ISO)</td>
<td>Developing a standard for social responsibility.</td>
<td>ICMM monitoring initiative development</td>
<td>Social responsibility</td>
</tr>
<tr>
<td>World Economic Forum WEF Anti-Corruption Initiative</td>
<td>World Economic Forum</td>
<td>Set of business principles to counter bribery and corruption. Two codes of practice developed</td>
<td>ICMM monitoring initiative development</td>
<td>Anti-corruption</td>
</tr>
</tbody>
</table>

### D. Corporate initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Sponsor</th>
<th>Scope</th>
<th>Endorsement</th>
<th>Responsible mining themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Safety and Corporate Social Responsibility Reporting</td>
<td>Corporate and Site level sustainability reporting</td>
<td>Companies issuing annual reports</td>
<td>AngloGold, Barrick gold, Freeport Mc Moran, Kinross, Newmont Mining, Placer Dome, Rio Tinto, Goldfields</td>
<td>Environmental management, labor rights, social responsibility</td>
</tr>
</tbody>
</table>

### E. Jewelry sector initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Sponsor</th>
<th>Scope</th>
<th>Endorsement</th>
<th>Responsible Mining Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council for Responsible Jewellery Practices(CRJP)</td>
<td>Jewelers of America</td>
<td>Promotes responsible ethical, social and environmental Practices throughout the diamond, and gold jewellery supply chain from mine to retail</td>
<td>Fourteen founding members include BHP billiton, Newmont, Rio Tinto, ABN-AMRO, Cartier, DTC, Rossyblue, Signet, Tiffany, Zale</td>
<td>Ethical, social, environmental management</td>
</tr>
</tbody>
</table>
## F. Mining industry initiative

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Sponsor</th>
<th>Scope</th>
<th>Endorsement</th>
<th>Responsible Mining Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Reporting Initiative</td>
<td>GRIL and ICMM member companies</td>
<td>Develop mining sector sustainability reporting indicators (Mining and Metals Sector Supplement).</td>
<td>Members of ICMM including AngloGold Ashanti, Freeport McMoran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Economic, environmental, and social performance</td>
</tr>
<tr>
<td>“Towards Sustainable Mining”</td>
<td>Mining Association of Canada and member companies</td>
<td>Sustainability performance standards. Reporting required and condition of membership</td>
<td>Members of MAC including Barrick Gold, Kinross, Newmont Mining, Placer Dome</td>
<td>Security, environmental management, labor rights, community and aboriginal outreach</td>
</tr>
<tr>
<td>Sustainable Development Principles</td>
<td>National Mining Association (NMA), USA</td>
<td>Commitment to integrate 20 environmental, social and economic principles in mining operations from exploration through reclamation to post closure</td>
<td>Members of NMA including Barrick Gold, Kinross, Kennecott, Newmont, Placer Dome and others</td>
<td>Environmental management, social issue, economic issues</td>
</tr>
<tr>
<td>ICMM Sustainable Development charter</td>
<td>ICMM</td>
<td>Commitment to 10 high level principles covering ethics, integrating sustainable development, human rights, risk management, health and safety, environmental performance, biodiversity and land use, product stewardship, community development and</td>
<td>Members of ICMM including AngloGold, Freeport McMoran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Ethics, sustainable development, human rights, security, labor rights, environmental management, community development and disclosure</td>
</tr>
<tr>
<td>Protected Areas</td>
<td>ICMM and World Bank</td>
<td>Agreement not to mine or explore in UNESCO designated world heritage sites. Plans to discuss other protected areas and biodiversity</td>
<td>Members of ICMM including AngloGold, Freeport McMoran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Environmental management</td>
</tr>
<tr>
<td>Community Development Good Practice Tools</td>
<td>ICMM and World Bank</td>
<td>Community Development Best Practice Guidance</td>
<td>Members of ICMM including AngloGold, Freeport McMoran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Community development</td>
</tr>
<tr>
<td>Good Practice Website</td>
<td>ICMM, UNEP, DFID, and UNCTAD</td>
<td>Under Construction</td>
<td>Members of ICMM including AngloGold, Freeport McMoran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Sustainable development issues</td>
</tr>
<tr>
<td>Emergency Response APELL Project</td>
<td>ICMM and UNEP</td>
<td>In Development</td>
<td>AngloGold, Freeport McMoran, Newmont, Placer Dome, Rio Tinto and others</td>
<td>Labor rights, community rights and developments</td>
</tr>
</tbody>
</table>

Source: www.responsiblegold.org
CHAPTER 4
GOLD MINING IN GHANA

Abstract

Gold mining has significantly contributed to the economic development of Ghana, a gold-endowed West African nation. However, it is also responsible for many negative environmental and social impacts in Ghana. Experiences and news about such impacts have increased the social and environmental concerns about gold mining projects within the public domain. The stable democratic system in Ghana has led to significant improvements in news-media freedom that has enhanced the public debate about the social and environmental impacts of gold mining. A content analysis of newspaper articles from the Ghana web database related to mining was conducted in this study. By use of the search word “mining” through each annual database from 1999-2008, the newspaper articles were reviewed by headlines and content to identify the gold mining stakeholder groups and related newspaper type source (government-owned or privately-owned). The articles were then analyzed with an interdisciplinary focus (political, socio-economic, science and technology) to codify the mining stakeholder groups main concerns and expectations. The results showed government, mining firms, unlicensed/unregistered miners, and non-governmental organizations (NGOs) and communities as the main gold mining stakeholders and twenty-two concerns and
expectations related to gold mining. The analysis also revealed differences between

government-owned and privately-owned newspapers in the prioritization of their mining
issues. However, the news coverage increased in quantity and diversity for both
government-owned and privately-owned newspapers within the ten-year study period.

Moreover, the findings suggests a general growth in public interest related to gold mining
in decreasing order of industry, NGOs and communities, government and
unlicensed/unregistered miners.
4.1 Introduction

Ghana, a gold rich West African nation, is not left out in the current discourse about the sustainability of mining operations. Aside from its contribution to government revenue, gold mining has resulted in severe negative environmental and social impacts in Ghana. Experiences and news about such impacts have increased the social and environmental concerns about gold mining projects among stakeholders. By proactive mechanisms, corporate gold mining firms have responded through systematic actions aimed at addressing these negative impacts and stakeholder concerns about their activities. Besides traditional proactive measures such as the establishment of environmental management systems, regular reporting on community initiatives and progress in environmental and social performances, gold mining companies have adopted and implemented other sustainability projects. These sustainability projects developed in partnership with non-governmental organizations (NGOs), governments and community development organizations are aimed to enhance the well-being of the communities within the vicinity of their mine concessions. The proliferations of news-media outlets have increased the debate about the contribution of the mining industry to the sustainable development of the immediate communities and the nation as a whole. By news-media article survey, this chapter investigates the various gold mining stakeholder groups and their concerns related to sustainable gold mining in Ghana.
4.2 The Ghana Gold mining Sector and its Impacts

4.2.1 Geological and Metallogenic Setting

The gold deposits in Ghana are found within the Paleoproterozoic rocks that were deformed and metamorphosed during Eburnean Orogeny about two billion years ago (Hilson, 2002; Chalokwu et al., 1997; Opare-Addo et al., 1993; Eisenlohr and Hirdes, 1992; Milesi et al., 1992, 1989). The orogeny tectonised large portions of West Africa and formed the Birimian and the Tarkwain gold belts in the western portion of Ghana (Figure 4-1). A recent literature on the geological history of the Birimian regards it as a lithostratigraphic super group in which the different units are considered contemporaneous or lateral facies equivalents (Leube et al., 1990). The super group was deposited as volcanic, pyroclastic and sedimentary rocks in marine basins between 2180-2170 million years (Ma) ago (Taylor et al.; 1992). Contemporaneously, sedimentary rocks of chemical origin including carbonates, manganese-rich rocks (Mucke et al., 1999), thick turbidite packages, and carbonaceous shales and rare cherts (Tunks et al., 2004) were formed on the flanks of the volcanics in the basin. The Tarkwain Group that consists of arenaceous and other clastic rocks then overlaid discordantly on the volcano-sedimentary belts. The Eburnean tecto-metamorphic event subjected both deposits to metamorphism, isoclinals folding, and intrusion by large masses of granitoids (Figure 4-1). Historically, the gold mineralization in Ghana is primarily along the Birimian shear zones and secondary in the quartz-conglomerates of the banket series within the Tarkwaian Group (Milesi, 1991). The gold belts of the shear zone is regarded as
Figure 4.1: Geology and gold mineralization of Ghana. Source: Reproduced from Volta resource Inc; available at http://www.voltaresources.com/s/AshantiBelt.asp
as structurally controlled, since they were formed by fault zones that became filled with quartz due to polyphase movement; hydrothermal deposits (Junner as cited in Milesi, 1991) later impregnated the mylonitic zones.

Three main postulates are available in the literature about the secondary gold deposits in Ghana. The gold in the Tarkwain Group was derived from the Birimian vein and lode-type deposits (Kesse, 1985; Hirdes et al.; 1988). Other researchers showed that the gold in the conglomerate were paleoplacers; thus the gold bearing conglomerates where derived from erosion of gold bearing rocks that were preferentially concentrated by paleo-currents. However, Whitelaw (as cited in Milesi, 1991) suggested that the gold mineralization might be related to a major hydrothermal event near plutonic intrusions.

Due to severe episodes of erosion for millions of years, the Tarkwain belts have been redeposited along terraces, floodplains, channels and the river beds of local water bodies such as Pra, Ankobra and Tano as placer gold deposits (Hilson, 2002) (Figure 4-1). These metallogenic setting of Ghana’s gold make it suitable for both large and small-scale mining.

4.2.2 Types of Gold mines

The gold mines in Ghana are of two types: the large scale and the small scale mines; the former is highly mechanized, mainly dominated by non-Ghanaians while the latter is labor intensive with the used of rudimentary equipments operated by
unemployed rural communities (Garvin et al, 2009; Hilson, 2006). Within the small scale-mining operations are the small-scale miners who operate illegally without any formal concessional arrangements with government. This group of unregistered small-scale miners is locally referred to as “galamsey”. Figure 4-2 below shows a typology of the large and small-scale mining operations in Ghana. The number of employees by the gold mining types increases in the order: licensed, mechanized and high capital investment large-scale mines (20,000 employees), licensed, non-mechanized, medium capital investment mines (35,000 employees) and unlicensed, non-mechanized, low capital investment mines (65,000 employees), (Figure 4-2). In addition, investment risk, occupational risk, and health risk also increase in the same order as above.

4.2.3 Economic Impacts

Gold production by both mining types has generally showed an increasing trend between 1990 and 2009, however the large-scale mining accounts for about 98% of the total gold exports while small-scale mining covers the remaining 2% (Table 4-1). However, the contributions of small-scale mining to the total gold export exclude that of the unregistered miners (galamseys). The galamsey miners smuggle the gold that they produce through an organized black market system (Aryee, 2003), which results in significant loss of government revenue and official records on their exports. Table 4-2 shows the trend in gold production and economic contributions in recent times. Gold
Figure 4-2: Characteristics of the gold mining types in Ghana. Source: Garvin et al., 2009; Hilson, 2006; Aryee et al., 2003; Lundberg et al., n.d.
Table 4.1: The contributions of large and small gold mining to the total gold export values and productions

<table>
<thead>
<tr>
<th>Year</th>
<th>Large scale production (ounces)</th>
<th>Small scale production (ounces)</th>
<th>Export Values by large scale mining ($Million)</th>
<th>Export Values by small scale mining ($Million)</th>
<th>Total Export values; Exports by large scale + small scale mining ($Million)</th>
<th>% of small scale mining export of the total export values</th>
<th>% of large scale mining export of the total export values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>541,147</td>
<td>17,230</td>
<td>304</td>
<td>6</td>
<td>310</td>
<td>1.9</td>
<td>98.1</td>
</tr>
<tr>
<td>1995</td>
<td>1, 715, 867</td>
<td>55, 540</td>
<td>647</td>
<td>21</td>
<td>668</td>
<td>3.1</td>
<td>96.9</td>
</tr>
<tr>
<td>2000</td>
<td>2, 457, 152</td>
<td>62, 000</td>
<td>702</td>
<td>17</td>
<td>719</td>
<td>2.4</td>
<td>97.6</td>
</tr>
<tr>
<td>2005</td>
<td>2, 138, 944</td>
<td>29, 740</td>
<td>946</td>
<td>13</td>
<td>959</td>
<td>1.8</td>
<td>98.2</td>
</tr>
<tr>
<td>2008</td>
<td>2, 839, 802</td>
<td>38, 120</td>
<td>246</td>
<td>33</td>
<td>2, 279</td>
<td>1.4</td>
<td>98.6</td>
</tr>
<tr>
<td>2009</td>
<td>3, 119, 823</td>
<td>76, 880</td>
<td>2, 843</td>
<td>75</td>
<td>2, 918</td>
<td>2.6</td>
<td>97.4</td>
</tr>
</tbody>
</table>

contributed significantly to government revenue between 1990 and 2009 and the export revenue from gold increased by 12 fold from 304 million dollars to 3,632 million dollars. This corresponds with the general increase in the percentage of gold production to the national economy from 19% in 1990 to 48% in 2010 (Table 4-2). Moreover, the gold mining sector showed its continuous ascendency in Ghana’s gross domestic product at approximately six percent (Table 4-2).

Locally, mining firms in their quest to develop their host communities economy have implemented employment and contract policies that will enable the local community members to work in mining and non-mining related jobs. However, the current highly mechanized gold mining techniques used by large-scale miners do not create any significant employment for economic development. Statistically, over the past 20 years, there have been about 800 fold increases in gold production without significant economic gains (Hilson, 2006). Presently, the gold mining sector employs about 20,000 indigenous people contrary to the high employment expectations of the local communities. Such low absorption rates in addition to loss of farmlands due to mining activities are major causes of unrest in most mining regions (Kumah, 2006).
Table 4-2: The contribution of mining to the national economy

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (ounce)</th>
<th>Contributions to GDP (%)</th>
<th>Export Values ($Million)</th>
<th>Gold as a Percentage of National Export (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>541,147</td>
<td>4.83</td>
<td>202</td>
<td>19</td>
</tr>
<tr>
<td>1995</td>
<td>1,715,867</td>
<td>5.63</td>
<td>647</td>
<td>44</td>
</tr>
<tr>
<td>2000</td>
<td>2,457,152</td>
<td>5.56</td>
<td>702</td>
<td>36</td>
</tr>
<tr>
<td>2005</td>
<td>2,138,944</td>
<td>5.02</td>
<td>946</td>
<td>34</td>
</tr>
<tr>
<td>2008</td>
<td>2,839,802</td>
<td>5.58</td>
<td>2,246</td>
<td>43</td>
</tr>
<tr>
<td>2009</td>
<td>3,119,823</td>
<td>5.78</td>
<td>2,843</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>2,970,079</td>
<td>-</td>
<td>3,621</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Eshun and Jellicoe, 2011
4.2.4 Environmental and Social Impacts

Gold production is an ecological and environmentally sensitive activity that requires compliances with several government regulatory and environmental requirements such as an environmental impact assessment. From the exploration to the development of a mineral resource, mineral concession owners need different types of licenses. In addition, there are monitoring requirements and voluntary partnerships with local communities during operations, closure and post-closure environmental restoration of a mine to safeguard the environment, and protect public safety and health. For example, Golden Star Resources has collaborated with local communities of its Wassa mine to form a blasting committee that ensures that blasting-related impacts such as noise, dust and vibration are within the required standards (Golden Star Resources, 2006). Corporate gold mining firms who are legally permitted to mine on ancestral lands of local communities have realized that they also need to seek the “social license to operate” from the local mining host communities before their operations will be viable. They have therefore invested considerable amount of money in community programs that include infrastructure and livelihood development programs (Hilson, 2006). Mining companies have built and rehabilitated community based schools, health facilities, roads, and water and sanitation infrastructures of their host communities in Ghana. For example, Newmont Ghana Gold Limited (NGGL) collaborated with local NGOs to implement programs such as youth training in dressmaking, masonry, local business development and more within resettled villages and other adjacent areas. NGGL has also collaborated
with a local NGO known as Concern Universal to address issues about HIV and bushfire in the immediate communities around their operation (Anderson, 2007). Mining companies have resettled communities who occupied their concessions to new areas in houses with improved infrastructures, and compensate for loss farmlands. Resettlements and compensation processes were organized through fora with participants that include affected communities, local groups, chiefs, lawyers representing groups and other interested participants to ensure the balance of power and transparency. Although gold mining firms have demonstrated environmental and social stewardships, their activities indeed have a history of environmental incidents and social unrests due to negative impacts on environmental amenities that local communities depend on for their livelihoods (Kumah, 2006). The environmental impacts of large-scale mines in Ghana are principally about cyanide leakage and spillages, land degradation and dust pollution (Table 4-3). Gold mining operations in Ghana have polluted rivers and streams, killing significant food and water sources of mining communities, surrounding crops and fallow-land (Armstrong, 2008; Kumah, 2006) that has led to the relocation of households to unaffected communities (Table 4-3). In addition, their operations could have led to micro-contaminations from the misuse, mishandling and storage of explosives and their residues that are used in blasting gold bearing ores. The activities of large-scale mining companies in Ghana are associated with incidence of combined forces of mines security, the police and the military who violently crackdown on people protesting against the operations of mining corporations (Table 4-4). Furthermore, the operations of large-scale
Table 4-3: The environmental impacts by corporate mining firms

<table>
<thead>
<tr>
<th>Events</th>
<th>Impacts</th>
<th>Company Ownership</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousands of cube meters of cyanide contaminated water leaked from a ruptured tailing dam of Goldfields mine</td>
<td>Contaminated the source of drinking water for five villages; killed all forms of life in the river and its tributaries. It also This lead to health impacts such as skin rashes</td>
<td>Goldfields South Africa Ltd. (90%); Government of Ghana (10%)</td>
<td>2001</td>
</tr>
<tr>
<td>Cyanide spilled at a mine operated by AngloGold Ashanti (AGC) at Obuasi</td>
<td>Displacement of seven communities</td>
<td>Anglo American Plc. (UK) and others; IFC holds a 20% stake in Iduapriem; GoG holds a 10% interest in Teberebie</td>
<td>1998</td>
</tr>
<tr>
<td>Dust pollution in Ghana’s mining district from the inhalation of quartz dust from gold bearing rocks</td>
<td>High incidence of silico-tuberculosis in the mining communities at a rate of 10.1- 18.7/100 people per year</td>
<td>-</td>
<td>1998</td>
</tr>
<tr>
<td>Cyanide spill at a mine operated by Teberebie Goldfields</td>
<td>Widespread damage to the immediate rivers and surrounding crops</td>
<td>Anglo American Plc. (UK) and others; IFC holds a 20% stake in Iduapriem; GoG holds a 10% interest in Teberebie</td>
<td>1996</td>
</tr>
<tr>
<td>Cyanide spill at a mine operated by Bogoso Gold Goldfields</td>
<td>Contamination of surrounding rivers, farmers abandoned their contaminated farms to relocate to unaffected communities</td>
<td>Golden Star Resources Ltd. (US); GoG (10%)</td>
<td>1994</td>
</tr>
<tr>
<td>Land degradation due to intensive large scale mining activity</td>
<td>Landscape devoid of vegetation but has numerous potholes. This has lead to the shortening of the fallow period from 10-15years to 2-3 years</td>
<td>All large scale mining companies</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Kumah, 2006; www.ghanaweb.com; Armstrong,
Table 4-4: Human rights and other violations of the mining communities by corporate mining firms

<table>
<thead>
<tr>
<th>Events</th>
<th>Impacts</th>
<th>Company Ownership</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden star’s security personal, the military and police “flushed out” illegal miners from their concession</td>
<td>Four miners sustained gun shots and numerous properties were damages</td>
<td>Golden Star Resources Ltd. (US); Government of Ghana (GoG) (10%)</td>
<td>2006</td>
</tr>
<tr>
<td>The military acting on behalf of Anglo-gold Ashanti (AGC) attacked farmers for allegedly using an access route to the company’s rock dump</td>
<td>Three farmers were shot and 1 beaten up</td>
<td>Anglo American Plc. (UK) and others; IFC holds a 20% stake in Iduapriem; GoG holds a 10% interest in Teberebie</td>
<td>2006</td>
</tr>
<tr>
<td>Youth protesting against Newmont Ghana Gold Limited (NGGL) alleged unfulfilled promises to provide jobs for the communities clashed with the military</td>
<td>Soldiers indiscriminately assaulted the youth with batons and butts of guns, forced people out of their homes and detained 13 people in jail</td>
<td>Newmont Mining Corporation (US)</td>
<td>2006</td>
</tr>
<tr>
<td>A man suspected to be an unregistered miner encroached on AGC’s concessions</td>
<td>The man was shot in the abdomen before arrested by a combined squad of military, police, and AngloGold Ashanti security personnel</td>
<td>Anglo American Plc. (UK) and others; IFC holds a 20% stake in Iduapriem; GoG holds a 10% interest in Teberebie</td>
<td>2005</td>
</tr>
<tr>
<td>Military opened fire on a crowd demonstrating against the negative impacts of Bogoso Gold mining operations</td>
<td>Seven people were wounded including a 13-year old</td>
<td>Golden Star Resources Ltd. (US); GoG (10%)</td>
<td>2005</td>
</tr>
<tr>
<td>Police shot farmers on their way to protest on the unfair compensation at Newmont’s Akyem Mine</td>
<td>Two protestors were killed</td>
<td>Newmont Mining Corporation (US)</td>
<td>2005</td>
</tr>
<tr>
<td>AGC’s security personnel, the police and military clashed with a mining community’s youth over a concession encroachment</td>
<td>Three artisanal miners were killed and others were intimidated and arrested</td>
<td>Anglo American Plc. (UK) and others; IFC holds a 20% stake in Iduapriem; GoG holds a 10% interest in Teberebie</td>
<td>1994-1997</td>
</tr>
</tbody>
</table>

Source: Kumah, 2006; www.ghanaweb.com; Armstrong, 2008
Table 4-5: The social impacts by corporate mining firms

<table>
<thead>
<tr>
<th>Events</th>
<th>Impacts</th>
<th>Company Ownership</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>GoldStar Resources relocated a community to make way for mining expansion</td>
<td>Loss of social fabric for the 50 households with a population of 150</td>
<td>Golden Star Resources Ltd. (US); GoG (10%)</td>
<td>2006</td>
</tr>
<tr>
<td>Inhabitants of Teberebie were relocated for the development of the Tebereberi Goldfields</td>
<td>Loss of land resources, chronic impoverishment, social disruption and decreased access to basic social and public services</td>
<td>Anglo American Plc. (UK) and others; IFC holds a 20% stake in Iduapriem; GoG holds a 10% interest in Teberebie</td>
<td>1995</td>
</tr>
</tbody>
</table>

Source: Kumah, 2006; www.ghanaweb.com; Armstrong, 2008
gold mining companies have led to cases of relocation of communities from their ancestral lands turned corporate gold mining companies’ legal properties to new sites that they bear no social connection. These significantly affect the social fabric, farmland and other social amenities of the community (Table 4-5).

Historically, most corporate mining firms in Ghana do not factor the needs of the community in their community infrastructure and livelihood development programs. They generally tend to make their own decisions and developed programs of their choice (Hilson, 2006). For example, companies have implemented similar agricultural development programs for communities instead of helping the youth to acquire skills in more sustainable occupation such as carpentry, tailoring, blacksmithing that can go beyond the mine’s operations (Nyame, 2002). There is a gradual change in this company led approach to community development. Currently, companies such as Newmont Ghana Gold Limited are collaborating with local communities and developmental organization in the implementation of development projects. Nevertheless, the degree of economic, social and environmental awareness coupled with visible poverty levels, the history of social and environmental incidents related to the mining of gold in Ghana have increased the discourse about the role of mining in national development. The proliferations of news-media outlets have increased the debate about the contribution of the mining industry to the sustainable development of the immediate communities and the nation as a whole.
4.3 Theoretical and Conceptual Framework

The media-agenda setting theory developed by Mc Combs and Shaw in 1968 describes the ability of the news media to influence the salience of topics on the public agenda (Mc Combs and Reynold, 2002). The theory posits a relationship between the relative frequency of media attention to various topics and the degree of salience these topics have for the public. In terms of causality, increased media coverage leads to increased public concern for a particular issue (Cox, 2006; Kwansah, 2003; Brown and Deegan, 1988; Mc Combs et al., 1997). As depicted in Figure 4-3, the agenda setting-theory model suggests that the public perception of a reality is influenced by direct connection with reality itself and reality as portrayed by the media (media agenda setting). However, according to the media-agenda setting theory, a journalist selects newsworthy issues (events or stories) from real world issues to report. As a result, the public does not regard the non-selected real world issues as relevant or even realize they exist. The public selects what is important from the priorities of the media broadcast and then attaches similar priorities within its own agenda (Kwansah, 2003). This is true for the section of the public who has no direct connection and experience with the newsworthy event (Deegan et al., 2000). Figure 4-4 is the conceptual framework in this study that was modified from the media-agenda setting model that presumed that public perception of gold mining events is shaped by media agenda setting through newspaper articles. This study focuses on gold mining events as reported by newspapers. A selective newspaper reporting shapes the public perspective about the gold mining industry. For
Figure 4-3: Public perception of reality and the media agenda-setting model
Figure 4-4: Presumed public perception as shaped by media agenda setting
example, the criterion for the selection of gold mining events leads to unequal treatments of gold mining stories, and dominance of the selected gold mining themes and stakeholder concerns in the public discourse countrywide. It is noteworthy that public perception in this study was not measured but derived from only newspaper articles.

4.4 News Media Coverage of Events/Issues in Ghana

Ghana has had a stable democratic system since the year 1992 with significant improvements in freedom of the media and speech. During the period between post-independence (after 1957) and the year 1992, the broadcast media were government-owned and controlled (Kwansah, 2003). Few private newspapers existed and operated alongside the government-owned (public) media. Ghana had three democratic and five military governments between the 1957 and 1991; obviously, the operations of government-owned media were more restricted under the military regimes than the democratic governments (Rockson, 1990). Ghana shifted to democratic rule in 1992, adopted a constitution granted media freedom, and established for the first time the legality of private broadcasting (Heath, 2005). This has resulted in the distribution and sale of numerous newspapers and magazines with diverse focus in the streets and newsstands of the major cities. Moreover, several vibrant private FM radio stations compete with the old and well-established government-owned media in broadcast. The continuous proliferation of the media (print media, radio and television) outlets in Ghana has increased the discourse about issues including those about the gold mining industry.
The literacy level of Ghanaians aged 15 years and over is 53.3%. This percentage consists of Ghanaians with literacy level in English only, 12.7%; English and any Ghanaian language, 34.2%; and Ghanaian language only, 6.4% (Ghana Statistical Services, 2002). Therefore, only about 47% of Ghanaians (literacy levels in English only, 12.7%; English and any Ghanaian Language, 34.2%) could derive news information from the mainly English print media. However, the nature of broadcast of the alternative media (radio and TV) has enhanced the amount of newspaper information in the public domain. The Ghanaian radio and television station conduct extensive discussions about issues in the print media in their special early mornings and evenings newspaper review programs. This popular review programs are conducted as panel discussion by social commentators, politicians and other experts in English language and major local languages. This innovative broadcast by the media houses of Ghana especially in popular local dialects serves as a major source of information to the 6.4% of Ghanaians language only literates and the remaining 46.7% illiterate Ghanaians. Therefore, when issues about gold mining such as public protest, government revenue, accidents and incidents are reported in the print media, they become common knowledge to the public. As outline above, such newspapers information can shapes the public perspective about the gold mining industry. Hence, this study aims to assess the gold mining issues within the public domain using newspapers information as a proxy.
4.5 Methods

The objectives in this research were to capture four principal gold mining issues as reported by newspapers in Ghana over the period 1999-2008. These are to:

- Determine the newspaper types and their coverage about gold mining stakeholder groups,
- Established the trends in media attention towards the gold mining stakeholder groups,
- Investigate the stakeholders main concerns about main gold mining,
- Determine the public views of the main concerns related to gold mining.

To address these objectives, a content analysis of private and public news-media articles from the Ghana Web database was conducted. The database created in 1996 collects available daily newspaper articles of the Ghanaian media. The newspaper articles from the year 1999 were considered quantitatively useful and reliable because the database had passed the “construction” phase. The search word “mining” was used to search through each annual database of the newspaper articles from 1999 to 2008. The newspaper articles about gold mining were selected by headline and content to identify the stakeholders and related newspaper type sources. The identified stakeholders were classified into groups while the newspaper type sources were either government-owned or privately-owned. The articles were then analyzed with an interdisciplinary focus (political, socio-economic, science and technology) to codify the identified stakeholder
groups main concerns about gold mining. Each article was allocated to a stakeholder group’s main concern about gold mining. The results revealed industry, government, unregistered miners, and non-governmental organizations (NGOs) and communities as the stakeholder groups with related twenty-two key concerns about gold mining. These concerns were further grouped under six themes of enforcement (E), technology (T), regulations (R), management (M), sustainable livelihood (S) and “other” (O), (Appendix 1).

4.6 Results

4.6.1 Newspaper Types (Government-owned and Privately-owned) and Gold mining Stakeholders

Overall, one privately-owned regional newspaper type, three government-owned national newspaper types and ten privately-owned national newspapers types (Table 4-6) were used in determining the various gold mining stakeholder groups (Table 4-7) and their related concerns. The distribution and the counts for private and public newspapers articles for each stakeholder over the 10-year period are displayed in Table 4-8. The stakeholder groups of industry, NGOs and communities, government and unregistered miners ranked in this decreasing order of counts for both the privately-owned and government-owned newspaper types. On the average, the three government-owned
**Table 4-6: Characteristics of the Ghanaian newspaper types**

<table>
<thead>
<tr>
<th>Newspaper Name</th>
<th>Ownership Type</th>
<th>Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accra Mail</td>
<td>Private</td>
<td>Regional</td>
</tr>
<tr>
<td>Crusading Guide</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Daily Graphic</td>
<td>Government</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Evening News</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Ghanaian Times</td>
<td>Government-owned (Public)</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Ghanaian Chronicle</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Gye-Nyame Concorde</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Ghana News Agency</td>
<td>Government-owned (Public)</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Insight</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Inquirer</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Network Herald</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Public Agenda</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Statesman</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
<tr>
<td>The Independence</td>
<td>Private</td>
<td>Nationwide</td>
</tr>
</tbody>
</table>
**Table 4-7: Descriptions of gold mining stakeholder groups**

<table>
<thead>
<tr>
<th>Stakeholder Groups</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Government agencies and the academia</td>
</tr>
<tr>
<td>Non-Governmental Organizations(NGO’s) and Communities</td>
<td>Anti-mining not-for-profit organization, immediate mining communities</td>
</tr>
<tr>
<td>Industry</td>
<td>Licensed large gold mining companies and the Ghana chamber of Mines (mineral industry association in Ghana)</td>
</tr>
<tr>
<td>Unregistered Miners</td>
<td>Unlicensed small-scale miners who operate without any formal concessional arrangements with the government. They are locally referred to as “galamsey”.</td>
</tr>
</tbody>
</table>
Table 4-8: Distributions of reporting on specific gold mining stakeholders by the privately-owned and government-owned newspapers types

<table>
<thead>
<tr>
<th>Newspaper Ownership</th>
<th>Gold Mining Stakeholders</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government</td>
<td>NGOs and</td>
<td>Industry</td>
<td>Unregistered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communities</td>
<td></td>
<td>Miners</td>
</tr>
<tr>
<td>Government-owned</td>
<td>94.3% (267)*</td>
<td>89.7% (295)</td>
<td>91.5% (410)</td>
<td>85.7% (48)</td>
</tr>
<tr>
<td>Privately-owned</td>
<td>5.7% (16)</td>
<td>10.3% (34)</td>
<td>8.5% (38)</td>
<td>14.3% (8)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (283)</td>
<td>100% (329)</td>
<td>100% (448)</td>
<td>100% (56)</td>
</tr>
<tr>
<td>Rank</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

* = counts of newspaper articles (media attention/coverage)
newspapers (Table 4-6) attention to the mining stakeholders groups accounted for about 90% of the total news-media coverage while the eleven privately-owned newspapers made up the remaining 10% of the total news-media coverage (Table 4-8). The results show that the government-owned media has given disproportionate media attention/coverage (as revealed by counts of newspaper articles) to industry (410 newspaper articles) relative to NGOs and communities (295 newspaper articles) and government (295 newspaper articles), (Table 4-8). In addition, all the stakeholder groups received abundant media coverage from the government-owned media relative to the privately-owned media. Nevertheless, the privately-owned media showed similar media attention to its two most dominant gold mining stakeholders (industry, 38 newspaper counts; NGOs and communities, 34 newspaper counts) and a general limited media attention to the other two stakeholder groups. However, the unregistered miners received the minimal media attention in both news media (Table 4-8) across the study period.

4.6.2 The Trends in Media Attention to the Gold mining Stakeholders

For the period between 1999 and 2008, the privately-owned and government-owned news media published 1,116 newspaper articles related to gold mining. The general temporal pattern of the newspaper articles related to the stakeholders indicates an increasing trend in media coverage (Table 4-9). Nevertheless, a detail analysis of the pattern of media attention shows few newspaper articles from 1999 to 2001 followed by a pronounced upward shift from 2002 to 2006. The number of newspaper articles increased
rapidly from less than 50 in the year 2001 to 155 newspaper articles in the year 2004, and to reach the maximum of 320 newspaper articles in the year 2006 (Table 4-9). Afterwards, the number dropped to 87 newspaper articles in the year 2008. The numbers of newspaper articles related to unregistered miners were minimal throughout the ten-year period from 1999 to 2008. The significant increase in gold mining newspaper articles between 2004 and 2006 was due to politics and political lobbying by mining stakeholders that promulgated the enacting of the new Minerals and Mining Law of Ghana in 2006.

4.6.3 The Stakeholder Group Major Concerns related to Gold mining

Table 4-10 shows the general themes of the concerns of gold mining stakeholders. These concerns include conservation/protection of gold deposits (attribute #s: 3, 4), political and social aspects of extraction of gold (attribute #s: 6, 14, 19, 18), social responsibilities (attribute #’s: 14, 21), mining business image building (attribute #’s: 8, 9, 11, 12) and others. However, the concerns of the stakeholder groups identified in the articles constitute various percentages of each gold mining theme (Figure 4-5). The gold mining concerns of unlicensed miners and industry make up 100% of the “other” and sustainable livelihood themes respectively. The mining themes of enforcement and management consist of gold mining concerns of two stakeholders respectively (Figure 4-5). The percentages of the stakeholders concerns were 98% NGOs and communities, and
Table 4-9: A view of the overall pattern of media attention to gold mining by year

<table>
<thead>
<tr>
<th>Year</th>
<th>Government</th>
<th>Industry</th>
<th>NGOs &amp; Communities</th>
<th>Unregistered or Unlicensed Miners</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>8</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>2000</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>2001</td>
<td>3</td>
<td>13</td>
<td>4</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>2002</td>
<td>24</td>
<td>20</td>
<td>8</td>
<td>0</td>
<td>52</td>
</tr>
<tr>
<td>2003</td>
<td>33</td>
<td>50</td>
<td>16</td>
<td>0</td>
<td>99</td>
</tr>
<tr>
<td>2004</td>
<td>57</td>
<td>60</td>
<td>30</td>
<td>8</td>
<td>155</td>
</tr>
<tr>
<td>2005</td>
<td>42</td>
<td>70</td>
<td>92</td>
<td>20</td>
<td>224</td>
</tr>
<tr>
<td>2006</td>
<td>67</td>
<td>124</td>
<td>113</td>
<td>16</td>
<td>320</td>
</tr>
<tr>
<td>2007</td>
<td>26</td>
<td>58</td>
<td>36</td>
<td>7</td>
<td>127</td>
</tr>
<tr>
<td>2008</td>
<td>21</td>
<td>38</td>
<td>27</td>
<td>1</td>
<td>87</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>448</td>
<td>329</td>
<td>56</td>
<td>1,116</td>
</tr>
</tbody>
</table>
Table 4-10: Categories of gold mining stakeholders concerns

<table>
<thead>
<tr>
<th>Theme</th>
<th>Concerns (Attributes)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology (T)</td>
<td>1</td>
<td>Technological research and development</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Deaths of illegal miners due to their unsafe mining technologies</td>
</tr>
<tr>
<td>Regulation (M)</td>
<td>3</td>
<td>Development of new regulatory program</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Enforcement of new and existing regulations</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Criticism of new and/or existing government regulations</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Politics and political lobbying</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Land encroachment</td>
</tr>
<tr>
<td>Management (M)</td>
<td>8</td>
<td>Mine revenue</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Mining promotion by government officials</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Strategies for environmental issues</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Industry management issues</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Investment in mines</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Establishment of new mines</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Compensation of affected communities</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>Accidents and incidents at mines</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Pollution and land degradation by illegal miners</td>
</tr>
<tr>
<td>Enforcement (E)</td>
<td>17</td>
<td>Legal action or threat</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>Public protest by NGOs &amp; community groups</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Human rights violations</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Clashes with mine and government security agencies</td>
</tr>
<tr>
<td>Sustainable Livelihood (S)</td>
<td>21</td>
<td>Investment in community projects and developments</td>
</tr>
<tr>
<td>“Other” (O)</td>
<td>22</td>
<td>Jail of illegal miners and fraud by illegal miners or related personal</td>
</tr>
</tbody>
</table>
Figure 4-5: Distribution of gold mining themes to stakeholder groups
2% unregistered miners for the enforcement themes while the management theme consists of 60% industry and 40% government concerns. The technology and regulations themes each have gold mining concerns of four stakeholder groups in varying percentages (Figure 4-5). There are variations in the intensity of media coverage on the stakeholder-specific gold mining concerns (Figure 4-6 to Figure 4-9). Mine revenue and regulatory development were government’s two gold mining concerns with the greatest percentage of media attention (51% and 23% respectively), (Figure 4-6). The government is of less concern about mine promotion, regulatory enforcement, and technological research and development. The strengths and weaknesses in newspaper coverage about unregistered gold miners concerns are displayed in Figure 4-7. The dominant unregistered miners gold mining concerns as reported by the news media were land encroachment, death, jail, and fraud while the weakest were clashes with government and mines security agencies, and pollution and land degradation (Figure 4-7). Similarly, three out of the ten gold mining concerns of industry (general management, investment in communities, and politics and political lobbying) were dominant (Figure 4-8). The industry’s gold mining concerns with modest media coverage were accidents and incidents, compensation, investment in mines, technological research and development while new mines and development of new regulations attracted the least media attention. The media coverage of gold mining concerns of NGOs and communities were dominant for politics and political lobbying, and technological research and development (Figure 4-9). There was no significant difference in the news media attention regarding human
Figure 4.6: Government’s gold mining concerns
Figure 4-7: Unregistered miners gold mining concerns
Figure 4-8: Industry (gold mining firms) gold mining concerns
Figure 4-9: NGOs and communities gold mining concerns
rights violation, public protest, and criticism of regulatory program of NGOs and communities gold mining concerns (Figure 4-9).

4.6.4 The Public Views of the Key Issues related to Gold mining

Over the ten-year period from 1999 to 2008, the public viewed (as measured by proxy of media attention) industry, NGOs and communities, government and unlicensed miners as the main gold mining stakeholders. In addition, the private and government news media priorities of the stakeholder groups' gold mining concerns were varied. For example, the government media skewed towards industry concerns while the private media maintained a balanced newspaper articles about the concerns of both industry, and NGOs and communities, followed by government and unregistered miners. The intensity of the media coverage across the ten-year period demonstrates the consistency of the public awareness about the gold mining stakeholders’ variable strengths. For example, NGOs and communities are particular noted by the public for their gold mining concerns related to mining regulations while industry has less concern for enforcement (Figure 4-5).

4.7 Discussion

The intensity (the more often the media covers an issue) and the tone (the more often the media present certain opinion) of media coverage for unobtrusive issues directly influence public salience of that issue (Deegan et al.; 2002). Specifically, as the media coverage intensifies so does the public opinion on an issue becomes important and vice
versa. Similarly, the more often the media present certain opinion, the more people adopt that media opinion. In Ghana, the majority of the gold mines are located in remote locations in the western part of the country; hence, the media serves as a major intermediary between gold mining issues and public opinion. Therefore, the research reported in this study assumes that the gold mining news articles analyze within the context of the intensity and tone of media coverage would reveal the possible public opinion about gold mining in Ghana. McCombs and Estrada, (1997) who states that the media agenda priorities influence the public agenda priorities support this assumption. Further support for this assumption comes from Ghanem (1997) who relied on research evidence from numerous countries to prove that the media does influence the public agenda.

The government-owned media is the principal source of gold mining information within the public domain relative to the privately-owned media because the government-owned media news coverage makes up an average of 90% of the total gold mining news. This finding is in accordance with Kwansah-Aidoo (2003) who revealed that both media types play significant role in bringing issue to the public's attention; however, such issues could go unnoticed in many parts of Ghana if not reported by the pervasive government-owned media. Nevertheless, there are striking differences between the way the government-owned media and the privately-owned media report; the latter is sympathetic to the opposition and the former is pro-government (Kwansah-Aidoo, 2003).
In Ghana, the public perceives industry, NGOs and communities, government and unregistered miners as the four major gold mining stakeholder groups in this order of decreasing importance. This can be attributed to the fact that gold mining news coverage often reports these stakeholder groups concerns. The dominant gold mining concerns of industry are sustainable investments in local mining communities, environmental strategies to offset impacts, and accidents and incidents from operation. However, the public perceives different concerns for NGO’s and communities. The public opinion of NGOs and communities are tendered towards gold mining issues related to human rights violations and public protest because of their concerns about mining operations and criticism of regulatory program, and politics and political lobbying for sustainable mineral development.

The integration of the findings in the above analysis shows that the public has mixed perceptions and awareness of the concern about gold mining stakeholders due to media coverage. The industry (gold mining firms) displays their contributions to the economy, environment and voluntary practices to gain public acceptance while the NGO and communities countered these actions. The NGOs and communities group have adopted tools and strategies including politics and political lobbying, human rights violations, public protest, criticisms of regulatory programs of government and industry, and legal actions/threats to reveal the impacts of gold mining practices. Further, the government with mandate over mining issues has not been proactive in addressing the negative concerns and effects of gold mining operations. The government is rather
interested in promoting gold mining companies since mine promotions was its topmost concern. A proactive government needs to balance mine promotion together with regulatory enforcement, regulatory development and other technological research and development for public safety and wellbeing.

Unlicensed (galamsey) miners, who are mostly unemployed youth, encroach on mining corporations’ licensed mining concession to exploit for gold. The youth claim ancestral ties to mining concessions that are leased out by the government without providing them with alternative lands to farm or mine when communities are resettled in order to conduct mining operations (Carson et al., 2005). Galamsey miners normally employed rudimentary tools and practices such as digging deep holes without any engineering considerations and mercury amalgamation process to exploit for gold that have resulted in deaths. Despite the legitimate concerns and plight of these local indigenous landowners-miners, they are considered non-stakeholders in public, scientific, and governmental discourses about sustainable gold mining. Other citizens generally perceive them as criminals, polluters of drinking water (Tschakert, 2007) and degraders of concession lands. Galamsey miners are normally removed from licensed concessions of gold mining firms by combined police and military forces violent crackdowns that lead to their arrest and subsequent jail term.

The findings in this study are weakened by the subjective nature of categorizing the newspaper articles. Again, these findings could be corroborated with public study and stakeholder interviews about gold mining impacts in Ghana. The analysis of newspaper
articles can form the basis in the design of a future fieldwork survey to examine the influence of the vibrant Ghanaian media on public views related to gold mining. Other area of future research is to locate specific shifts in the discourse in the Ghanaian media about gold mining stakeholders’ priorities.

4.8 Conclusion

In 1992, Ghana returned to a democratic rule that included significant improvements in freedom of the media and speech. This led to the continuous proliferations of media outlets in Ghana. The result is a vibrant news media that enhances public discourse and awareness about national issues. Nevertheless, the news media has the ability to influence the salience of topics on the public agenda through its frequency of attention to various topics.

This study used newspaper information as a proxy to assess the gold mining issues within the public domain. The study established newspaper ownership types and trends in their coverage of the various gold mining stakeholders. Additionally, from the intensity of the media coverage, this study identified the main concerns and expectations of the gold mining stakeholders that are related to mining operations.

The government-owned and privately-owned media news coverages shaped the public opinion of gold mining issues with the former been the major source of information. The public opinion of gold mining issues has tendered towards two broad categories of stakeholders with contrasting mineral development positions. First, the pro-
mining category of mining industry and government whose news stories cover contributions to the economy, voluntary contributions towards sustainable development of the host communities and environmental protection strategies to protect public health. Second is the anti-mining category of NGOs and communities, and unregistered miners. The media coverage about this stakeholder concerns were their politics and political lobbying strategies, public protest and criticisms of regulatory programs of government and industry to highlight the nature of human right issues and unsustainable practices of gold mining operations. In addition, the news stories cover unregistered gold miners operational predicaments such as deaths, and clashes with governments and mine securities when they rise to seek their rights to mine for gold on lands they claim to have ancestral ties.
References


Appendix 2. Coding Methodologies

The gold mining stakeholders and their respective concerns about the mining were identified from the content analysis of newspaper articles. This was achieved by the manual review of each article for a period of four months in 2009. By use of the search word “mining”, news articles were searched and downloaded from the Ghana Web database starting from 1999 to 2008 and saved. The articles were reviewed by titles and keywords to identify the mining stakeholders and their concerns and expectations. When the title of the news articles does not indicate any particular stakeholder and/concern, the content of the article was reviewed to identify the keywords and topics that would allow its coding. The coding of the articles begun with a prelist of key topics and words of potential stakeholders and their concerns. This list was updated whenever new categories stakeholders and their concerns emerged. To avoid duplication of the results, each article was coded for a stakeholder and its related mining concerns. Where two stakeholders were identified in a newspaper article, the dominant stakeholder was selected based on the dominant issue. General news articles without any identifiable stakeholder were excluded from these analyses. These codings identified six categories of gold mining sustainability actors and 22 categories of actions that were then grouped under six themes: Enforcement (E), Technology (T), Regulations (R), Management (M), Sustainable livelihood (S) and other (O).
Stakeholders/Actors

The categories were (1) government (government agencies and academia), (2) industry (gold mining companies and the industry’s organization, the Ghana Chamber of Mines), Illegal Miners (locally called galamseys) and (4) Non-governmental Organizations (NGOs) and Communities (anti-mining not-for-profit organizations, immediate mining communities).

Actions (Issues)

The Technology (T) subcategories were (1) Technological research and development and (2) deaths of illegal miners due to their unsafe mining technologies. The Regulation (R) subcategory referred to (3) development of new regulatory program, (4) enforcement of new and existing regulations (5) Criticism of new and/or existing government regulations (6) politics and political lobbying (7) and land encroachment (8). The Management (M) subcategories referred to (9) mine revenue (10) mining promotion by government officials (11) strategies for environmental issues (12) industry management issues (13) investment in mines (14) establishment of new mines (15) compensation of affected communities (16) Accidents and incidents at mines (17) and pollution and land degradation by illegal miners. The Enforcement (E) subcategories referred to (18) legal action or threat (19) public protest by NGOs and communities (20) human rights violations (20) clashes with government and mine security agencies (21). The Sustainable
Livelihood(S) category referred to (21) investment in community projects and developments and the Other (O) subcategory referred to (22) Jail of illegal miners and fraud by illegal miners or related personal.
CHAPTER 5

PUBLIC RESPONSES TO MINING - THE ROLE OF GOVERNMENT POLICY IN SUSTAINABLE GOLD MINING IN GHANA

Abstract

In the early 1980s, the governments of mineral-rich nations in collaborations with the World Bank carried out reforms of their mining laws to attract mineral investors. However, mineral-rich nations of Latin American continued to develop innovative strategies that led to significant investments to their mineral sector. Therefore, their legal framework for mining emerged as the international best-practice standard for mineral investment. The legal framework that became known as the Latin American Mining Law Model (LAMLM) was adopted as the blueprint for mineral-rich countries in Africa. Ghana revised its 1986 Minerals and Mineral law in 2006 due to competitive pressure from other mineral nations and sustainable mineral development demands from the local mining communities and civic society. This study assessed the new 2006 Minerals and Mining law of Ghana against the LAMLM and emerging best practices for sustainable mineral development. The first study developed a LAMLM assessment template from the practices of the Latin American countries to benchmark the features of the 2006 Minerals and Mining law of Ghana. The second assessment was carried out by the use of a proposed sustainability mineral development template that was developed by the integrations of the LAMLM and emerging best practices identified in literature to benchmark the features of the new 2006 Minerals and Mining law of Ghana. The results show
that the new 2006 Minerals and Mining law of Ghana is compatible with the international best practice for mineral investment but significantly incompatible with the proposed sustainable mineral development model.
5.1 Introduction

Generally, a government of geologically favorable mining-country will devise the best incentives to attract mineral investors (Caspary and Berghaus, 2004; Otto and Cordes, 2002). On the other hand, mineral investors shop from a variety of geologically interesting countries with acceptable levels of attractive investment packages (Williams, 2005). As a result, mineral-rich countries are in continuous competition to attract investors and keep existing ones. These governments have therefore reformed their legal and regulatory frameworks to attract mineral investors (Otto and Cordes, 2002).

Stringent environmental regulations have become significant deterrent to the development of mines in most developed nations. In addition, mineral-rich countries regulators fear stringent environmental standard may deter new investments or caused “industrial flight” of established mining companies to other mineral rich nations with lax environmental standards. Consequently, competitive mineral-rich countries may lower their environmental and related regulations standards below efficient levels in order to attract investors (Neumayer, 2001). Historically, mining law reform has alternated between sovereign right of government-ownership and control; and creating an enabling environment for private-sector investments to ensure maximum benefits from mineral resources (Ayisi, 2009; Bastida et al., 2005). The period after the World War II witnessed the reform of mineral laws that led to greater government-ownership and control for national developmental goals (Williams, 2005). Those reforms did not provide adequate solutions to the desired outcomes and therefore led to the adoption of the private investment approach from the late 1980 onwards (Williams, 2005; Bastida et
A private sector capital investment operates on an attractive mining investment climates and market based allocation of resources. The developed and developing worlds have strategic characteristics and reasons that governed their adoption of a private sector investments model. Mineral rich developing countries such as Chile, South Africa, and Ghana who rely heavily on foreign direct investments and mineral exports carried out their reforms based on international competitive pressure to attract investments (Ayisi, 2009). On the other hand, developed countries including Australia, Canada and United States who are the major sources of foreign direct investments as well as major mining countries tend to carry out their reforms based on their domestic policy options instead of international pressure. For example, the United States still operates on its 1872 mining law; however, stakeholders are now calling for its review. Generally, developing countries are the principal actors in the reform of legal mining laws to attract investors from the developed countries. The World Bank (WB) played a major role in the legal, fiscal and institutional reforms of the mineral sector of most developing countries in Africa and Latin America (Bastida, 2008). The WB-led reform begun with the identification of the international “best practice” standards for mineral investments based on a range of factors that affects investment decisions, and the findings were then used to benchmark and compare a country with its competitors (World Bank, 2003). The reforms led to huge surge in foreign investment to the Latin American countries (Ayisi, 2009; Batsida, 2002). For example, between 1989 and 1990, the Latin American region accounted for 13% of total worldwide exploration investments in mining (Metals Economic Group, 2011). In addition, the region has been the most popular destination for
global exploration spending since 1994; from 2006-2010 the region was allocated 24-27% of global exploration expenditure (Metals Economic Group, 2011). The main contributing factor to these major successes of the region is its highly competitive legal framework for mining. This framework, known as the Latin American Mining Law Model (LAMLM) is the international best practice standard for investment (Bastida, 2006). It is also the WB recommended model of mineral sector reforms in developing countries (Ayisi, 2009). Chile pioneered mineral investment reforms in 1983 followed by Bolivia and Argentina after they realized the significant positive impacts of the reforms on Chile’s economy (Ossa, 2005). Venezuela and Columbia opt-out of their old mining law in 1999 and 2001 respectively to adopt the Chilean model while Ecuador carried out significant reforms to its law in the year 2000 (Ossa, 2005). Moreover, essential components of the model have inspired aspects of WB-led reforms in a wide range of countries such as Madagascar, Tanzania, Uganda, Ghana, Mongolia and Saudi Arabia (Naito, Remy and Williams, 2001) and regional initiatives such as the Africa initiatives towards harmonization of legal and regulatory frameworks for mining (Bastida, 2006).

5.2 Latin American Mining Law Model (LAMLM): An International Best Practice Standard for Investment

Two main drivers led to the development of the international best practice. First, the setting of enabling conditions for private mineral investments by the change from a government-ownership and control to the current model of a private mineral tenure. The current mineral tenure model is aim to strengthen private mineral investment rights and
security of tenure, streamline procedures and minimizes government interference.

Second, the rise of environmental concerns that led to constitutional reforms of most of the Latin American countries aimed to protect the environment and incorporate environmental issues in decisions making that is in line with international best practices (Bastida, 2005). In 1994, the WB carried out an extensive research on Latin American countries of Argentina, Bolivia, Chile, Ecuador, Peru and Mexico to identify and examine the key reforms that led to significant private-sector investments in their mineral sectors relative to other countries and regions. The study identified a clear and effective legal framework as the major factor that led to huge investments in their mining industry (The World Bank, 2003). The key features of this international best practice that the WB has recommended to other countries and region within the context of the two drivers of the LAMLM are presented in detail below.

5.2.1 Setting-Up Conditions for Private-sector Mineral Investments

The ownership of the mineral resource is a major issue in mineral investment decision making. Globally, the governments of mineral-rich nations are the owners of the minerals as granted by their constitutions (Table 5-1, item # 1). The government has the option of deciding between the use of public or private organization to explore and develop the mineral resource. In most cases, government grants the right to explore and exploit a mineral resource to private investors (Williams, 2005). However, in the midst of competition for potential investors, the government has to determine the optimal criteria for attracting effective mineral investors. Under this model, a private investor would be
Table 5-1: Composition of the international best practice for mineral investment - the Latin America mining law model (LAMLM)

<table>
<thead>
<tr>
<th>Best Practice Area</th>
<th>Item #</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral ownership</td>
<td>1.</td>
<td>Mineral ownership is vested to the government by the constitution. Governments are also mandated to set the regime for acquisition, maintenance, transfer and cancellation of mineral rights. They are also mandated to establish rights and obligations to parties and disputes resolutions.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Private investors are granted access to concessions in order of application after meeting certain requirements to streamline the mineral acquisition process.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>The size of concessions are defined by cadastre system and granted by title registrations to avoid concession ownership disputes.</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Requirements for maintaining the mineral right and operating under the mineral right. Failure to comply with the required fees to maintain mineral right is punish by loss of the right. In addition, failure to meet requirements for operating rights such as submission of periodic environmental requirements on conduct of operation will attract administrative sanctions but not the ground for cancelling mineral rights.</td>
</tr>
<tr>
<td>Disposition of minerals</td>
<td>5.</td>
<td>Mineral (exploration) rights under the concessional system function as a real property that can be freely transferable, mortgage able and protected by the law. Business risk and uncertainties are reduced since mineral rights could be mortgaged while raising funds for mining project without fear of uncertainties and delays in obtaining agreement with landowner and approval of environmental assessments.</td>
</tr>
<tr>
<td>Security of investments</td>
<td>6.</td>
<td>Protections aimed at managing &quot;political risk&quot; such as governmental actions, politically motivated insecurity in the country and international conflict that can impede normal operations of a business with detrimental financial impacts.</td>
</tr>
<tr>
<td>Legal protections</td>
<td>7.</td>
<td>Tools used are bilateral investment treaties (international arbitration: options beyond diplomatic negotiations to settle state-to-state investment disputes and investor-state disputes that involve a supervising institution after exhaustion of domestic legal remedies; Expropriation: protection against government outright taking of properties of the mineral industry or indirect takings through regulatory measures and slow encroachment on the ownership rights of foreign investor that will result in loss of management, use or control, or significant depreciation of the value of the assets).</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>Stabilization clauses: seek to preserve the law of the host country as it applies to the investment at the time that the contract was concluded. This will ensure that future changes to the law of the host country are inapplicable to the foreign investment contract within a period normally ten-years and beyond.</td>
</tr>
<tr>
<td>Land access and compensation</td>
<td>9.</td>
<td>Mineral developers may reach accessibility and compensational agreement with landowners who have surface right to the licensed concessions that the developers operation will affect.</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Dispute resolution mechanisms are stated in the mining law.</td>
</tr>
<tr>
<td>Best Practice Area</td>
<td>Item #</td>
<td>Characteristics</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Environmental issues</strong></td>
<td>11.</td>
<td>Central approach (laws apply to all sectors) and sectoral approach (applicable to mining industry only) to address environmental impacts of mining.</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>Environmental impact assessment (EIA) has remained the basic law and applicable after the grant of mineral rights.</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>Citizen participates in the EIA process through public hearings.</td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td>Opportunity to have access to relevant environmental information and public hearings in environmental matters related to mineral development.</td>
</tr>
<tr>
<td><strong>Fiscal regimes</strong></td>
<td>15.</td>
<td>Decreasing taxation and incentives may include preferential tax treatment such as low import duties, exemption and reduced taxation on the income of their expatriate employees, relief of some taxes and incentives, particularly for the industry.</td>
</tr>
<tr>
<td><strong>Royalty</strong></td>
<td>16.</td>
<td>Payment made to government for access to minerals. It ranges between an average of 0-6% based on the value of mineral concentrate, or overall annual net sale or profits of mining companies</td>
</tr>
<tr>
<td><strong>Administrative process and government role</strong></td>
<td>17.</td>
<td>Efficient mineral application process via a clearly stated streamlined application and approval of mineral rights application.</td>
</tr>
<tr>
<td></td>
<td>18.</td>
<td>It reduces the condition of exclusive discretion of government or governmental body and grant access to contest a decision where such governmental discretion is inevitable.</td>
</tr>
</tbody>
</table>
granted access to mineral right in priority for whoever applies first based on well-defined concession system and title registry (Ayisi, 2009).

Legal protection of investors is an essential component of the best practice in terms of a competitive private financial investment. Mineral investors most feared legal risk is the change in national law that may affect their investments (Table 5-1, item #’s 6-8). The best practice of managing such a risk is through the implementation of stabilization clauses in mineral laws and policies (Table 5-1, item # 8). A stabilization clause seeks to preserve the law of the host country as it applies to the investment at the time a contract was signed that ensures that the future changes to the law of the host country are inapplicable to the signed contract (UNCTAD, 2004). The investors primary interest is the stability of the fiscal regime, legal protection and prohibition of expropriation and nationalism. However, the most relevant stability demand of investors is the prohibition of imposition of new environmental regulation, additional environmental compliance requirement or any administrative/judicial ruling that would give new meaning to an existing law (Tienhaara, 2006; Walde and N'DI, 1996). Other private investments protections are ensured via bilateral investment treaties, regional treaties and state contracts (Table 5-1, item # 7). The obligations and right of the host nation and investors to seek their disagreement through an international arbitration normally strengthens these agreements.
5.2.2 Incorporating Environmental Regulations in Mineral Investment Models

The environmental component of the LAMLM is based on both the central and sector-specific approach (Table 5-1, item # 11). With the central approach, the general environmental law applies to all activities while for a sector approach it applies to the mining sector only. Chile, for example, operates by the central framework environmental law; Argentina operates on the sector-specific approach while Peru switched from the central approach to a sector-specific approach after a firm opposition against the former (Batsida, 2002). Independent of the two approaches, the dominant regulatory tool is the Environmental Impact Assessment (EIA). Under this model, the goal of the EIA is the continuous improvement in the project, and binding and enforceable commitments. The EIA system includes social impact assessment and coordination of public participation (Table 5-1, item #’s 12 and 13). Other environmental management tools such as environmental management planning and environmental monitoring program have been integrated into the EIA. Not until recently that EIA is required during the closure phase of a mine; it used to be limited to the exploration and development phase of mineral development. In addition, a public consultation procedure is carried out at the project approval stage and a recent development includes a socio-economic impact assessment (Table 5-1, items # 13). Moreover, traditional administrative mechanism such as warnings, fines and temporary to definitive shut down, civil and criminal mechanism were used to enforce EIA non-compliance.
5.3 A Sustainable Mineral Development Model

These reforms led to significant inflow of mineral investors into the mineral-rich Latin American countries. The agenda of international organizations such as the United Nations and the World Bank in partnerships with civic organizations on environmental matters has raised global awareness about the environment. The concept of Sustainable Development (SD), one of the results of these global collaborations is now the cornerstone of global policy-making in addressing the negative consequences of development activities. Essentially, SD is about the need for the present generation to develop in a sustainable way in order not to jeopardize the developmental capacities of future generations. As outlined in the Bruntland’s Report “Our Common Future” this development can be achieved by prudent environmental management of our activities and enhanced socio-economic performance (Hopwood, et al., 2005; Giddings et al., 2002; Bebbington and Gray, 2001; Langhelle, 1999). Gold mining is fundamentally incompatible with the basics of sustainable development (Sethi, 2005; Joyce and Thompson, 2002; Van and Barker, 2000; Wilson, 1999); nevertheless, it contributes significantly to the revenue base of mineral-rich nations. Currently, there are growing concerns about the sustainability of mineral development and the need to incorporate social, economic and environmental strategies into investment decisions within the sustainability framework. Such integration leads to a responsible mining practice.
The components of responsible mining best practice are primarily derived from researches and applied examples as illustrated in Table 5-2. For example, Bastida (2005) showed the use of financial sureties against efficient mine closures in Chile. Furthermore, Hilson and Nyame (2006) suggested the need to include the public in the decision-making related to mining in the forest reserve of Ghana. In Canada, the province of Manitoba has developed an integrated land use management system aimed to minimize the overlap of incompatible land use allocations and associated conflicts. This led to the development of a policy that allows mineral extraction only within 30km of indigenous people’s land classified as a reserve (community interest zone) after their consent is sought (IEED and WBCSD, 2002). Furthermore, the Colombian constitution pertains to the recognition of the indigenous rights and management of their lands, grant precedence of access to mineral rights to ethnic groups and compliance with sets of requirements for the exploration and exploitation of mineral resources in indigenous lands (Warden-Fernandez, 2001). Moreover, South Africa has developed substantial tools and strategies to factor in historically disadvantaged South Africans (HDSA) in their mining issues (Bannigan, 2009). These examples show the potentials of indigenous and local landowner participation and consultation in mineral development decision making. The practices above and similar when incorporated with existing mining regulations and taxations will ensure efficient mitigation and internalization of the negative social and environmental externalities of mining operations (Waye et al.; 2009). Hence, in this study, sustainable investment policy is define as the integration of best practices to attract investors with the condition of a performance financial surety to ensure compliance with
Table 5-2: Recent developments in mineral investment best practice areas

<table>
<thead>
<tr>
<th>Enforcement mechanisms (except warnings, fines, criminal and civil mechanisms, temporary to complete shutdown)</th>
<th>1. New enforcement mechanisms through financial guarantees such as trusts, bonds or financial sureties to guarantee performance before carrying out any mining operation. A failure to comply with the required standards authorizes the government to confiscate the amount of the guarantee.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-ownership of the natural resource for the communities with ancestral ties to the mineral concession</td>
<td>2. Participations of local communities in all phases of the mineral development that can affect their livelihoods.</td>
</tr>
<tr>
<td></td>
<td>3. Transparency and easy access to information related to the mineral development (records/reports on mineral explorations and geological information) and availability of free public information about any mineral investment.</td>
</tr>
<tr>
<td></td>
<td>4. Public disclosures of reclamation bond requirements and opportunity to file for a legal challenge if a company has not adequately met the terms of closure.</td>
</tr>
<tr>
<td></td>
<td>5. Transparency and public access to information through the provision of all mining and environmental permitting documents online for public consumption. This removes confidentiality clauses associated with mineral agreements.</td>
</tr>
<tr>
<td>A hypothecated tax system: mechanism for the distribution and reinvestment of mineral royalty</td>
<td>6. The transformations of mineral wealth into investments in the forms of dividends through economic diversifications, social development and environmental protection rather than consumption.</td>
</tr>
<tr>
<td>Restricted access to mineral lands defined as non-mining zones</td>
<td>7. Provisions that define areas of ecological value or sensitivity such as forest reserves as protected or restricted areas. In addition are provisions the define non-mining zones and prescribed distance from communities where a mineral waste dump may be sited.</td>
</tr>
<tr>
<td>Enhanced traditional administrative punitive actions</td>
<td>8. Fines and penalties for damages to natural resources from spillages and other mining related incidents and accidents common with local communities that could damage ecological services of natural resource.</td>
</tr>
<tr>
<td></td>
<td>9. Mechanisms for mining companies to gain sustainability credits by say providing potable water to another region to offset water pollution by the mining industry.</td>
</tr>
<tr>
<td>Flexible royalty system</td>
<td>10. A flexible royalty system based on the price of gold that leads to substantial boost in government revenue compared to a negotiable royalty system.</td>
</tr>
</tbody>
</table>

Source: Waye et al., 2009; Hilson and Nyame, 2006; Bastida, 2005
ecological sensitive mining practices and investment of the mineral wealth through
democratic public participation mechanisms and unrestricted information access. The
implementation of such a policy rests on the governments of mineral-rich nations since
they have the mandate that affects mining permit, revenue collections, environmental
monitoring and management. As described above, Ghana is one of the country’s that
benefitted from the WB led reforms; hence, the next section will describe the impacts of
the reforms on the economy of Ghana.

5.4 Mineral Sector Reforms and Economic Development of Ghana

Between early 1970s to early 1980s, Ghana suffered significant loss of foreign
exchange from mineral development due to unfavorable foreign investors climate
(Hilson, 2004). Gold showed a continuous decline in production from 714,442 ounces in
1970 to 276,659 ounces in 1983, Figure 5-1. In 1983, the government embarked on a
National Economic Recovery Program (ERP) under the guidance of the WB to promote
investment in the economy especially in the country’s mining sector; a major source of
foreign exchange (Hilson, 2004; Akabzaa and Dramani, 2001). This led to significant
growth in gold production levels. The quantity of gold produced rose from 282,299
ounces in 1984 to 3,119,823 ounces in 2009 (Figure, 5-1), representing about 11 fold
increase. According to Kumah (2006), the significant policy change under the program
that led to the continuous growth of the gold mining sector since 1986 were:
Figure 5-1: Impacts of economic policy, and minerals and mining law on gold production trend. Data Source: Akabzaa, 2001; Eshun and Jellicoe, 2011
• modifications to mining sector’s legislation to make the sector more conducive to foreign investment

• Increased fiscal liberation of the mining sector

• Privatization of state mining assets

• Enactment of environmental laws and other mining sector legislative changes

• Strengthening and re-orientation of government support institutions for the mining sector

As evident in Table 5-3 below, these reforms led to a continuous economic growth. The FDI investment increased to about four folds from $205.24 million in 1989 to $762.26 million in 2009 and the export earnings from total minerals within the same period increased about 14 folds from $186 million to $2,618 million. The major subsector that resulted in this trend was gold as it makes up about 95% of all the FDI in the mining sector (Broch and Owusu, 2011). Gold accounted for about 92% of all mineral exports and therefore significantly resulted in 39.5% of the total mineral export earnings of the total national merchandise exports, Table 5-3.

Specifically, between 1985 and 1999, the government promulgated five laws, reformed four laws and established three national bodies to encourage investment and administer the mining and investment laws. As part of the ERP, Ghana enacted its first ever mining-specific law in 1986 that set out specific incentives to attract investors (Akabzaa, 2009). Examples of such incentives includes: import duty breaks on
Table 5-3: The impacts of economic reforms

<table>
<thead>
<tr>
<th>Year</th>
<th>Foreign Direct Investment (FDI)</th>
<th>Export earnings from the sale of total minerals (Millions US$)</th>
<th>Export earnings from the sale of gold (Millions US$)</th>
<th>Gold as a % of total mineral exports</th>
<th>% of Total mineral export earnings to total national merchandise exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>205.24</td>
<td>186</td>
<td>160</td>
<td>86.0</td>
<td>23.02</td>
</tr>
<tr>
<td>1990</td>
<td>398.24</td>
<td>243</td>
<td>202</td>
<td>83.1</td>
<td>27.09</td>
</tr>
<tr>
<td>1991</td>
<td>279.49</td>
<td>352</td>
<td>304</td>
<td>86.4</td>
<td>35.23</td>
</tr>
<tr>
<td>1992</td>
<td>595.4</td>
<td>389</td>
<td>343</td>
<td>88.2</td>
<td>39.45</td>
</tr>
<tr>
<td>1993</td>
<td>263.9</td>
<td>473</td>
<td>434</td>
<td>91.8</td>
<td>44.46</td>
</tr>
<tr>
<td>1994</td>
<td>98.33</td>
<td>589</td>
<td>549</td>
<td>93.2</td>
<td>47.59</td>
</tr>
<tr>
<td>1995</td>
<td>164.96</td>
<td>678</td>
<td>647</td>
<td>95.4</td>
<td>47.38</td>
</tr>
<tr>
<td>1996</td>
<td>774.76</td>
<td>640</td>
<td>612</td>
<td>95.6</td>
<td>40.75</td>
</tr>
<tr>
<td>1997</td>
<td>593.02</td>
<td>613</td>
<td>579</td>
<td>94.5</td>
<td>41.15</td>
</tr>
<tr>
<td>1998</td>
<td>267.54</td>
<td>718</td>
<td>688</td>
<td>95.8</td>
<td>34.33</td>
</tr>
<tr>
<td>1999</td>
<td>214.77</td>
<td>750</td>
<td>711</td>
<td>94.8</td>
<td>37.41</td>
</tr>
<tr>
<td>2000</td>
<td>231.78</td>
<td>756</td>
<td>702</td>
<td>92.9</td>
<td>39.05</td>
</tr>
<tr>
<td>2001</td>
<td>275.53</td>
<td>692</td>
<td>618</td>
<td>89.3</td>
<td>37.06</td>
</tr>
<tr>
<td>2002</td>
<td>315.59</td>
<td>754</td>
<td>689</td>
<td>91.4</td>
<td>36.54</td>
</tr>
<tr>
<td>2003</td>
<td>545.62</td>
<td>893</td>
<td>830</td>
<td>92.9</td>
<td>38.87</td>
</tr>
<tr>
<td>2004</td>
<td>638.33</td>
<td>904</td>
<td>840</td>
<td>92.9</td>
<td>33.43</td>
</tr>
<tr>
<td>2005</td>
<td>797.52</td>
<td>1035</td>
<td>946</td>
<td>91.4</td>
<td>36.93</td>
</tr>
<tr>
<td>2006</td>
<td>586.74</td>
<td>1462</td>
<td>1367</td>
<td>93.5</td>
<td>43.44</td>
</tr>
<tr>
<td>2007</td>
<td>665.3</td>
<td>1815</td>
<td>1734</td>
<td>95.5</td>
<td>56.44</td>
</tr>
<tr>
<td>2008</td>
<td>765.3</td>
<td>2346</td>
<td>2246</td>
<td>95.7</td>
<td>45.28</td>
</tr>
<tr>
<td>2009</td>
<td>762.26</td>
<td>2618</td>
<td>2551</td>
<td>97.4</td>
<td>44.51</td>
</tr>
</tbody>
</table>

AVERAGE 449.5 900.3 845.3 92.3 39.5

Source: Modified from Broch and Owusu, 2011
equipments and accessories for mining production, decrease in corporate income tax from 50-55% in 1975 to 35% in 1994, royalty rate of 6% in 1975 was reduced to 3% in 1987, and foreign exchange tax of 33-75% was eliminated (Akabzaa, 2009; Akabzaa and Dramani, 2001). Additional incentives include the permission granted to mining lease holders to retain a minimum of 25% of their foreign exchange earnings in an external account for procuring equipment, spare parts, raw materials and for dividend payment and remittance in respect of goods for expatriate personnel, among others (Akabzaa, 2009; Akabzaa and Dramani, 2001). The three established national bodies were the Minerals Commission, Ghana Environmental Protection Agency (GEPA) and Precious Minerals Marketing Corporation (PMMC). The Minerals Commission is responsible for mineral policy formulation, promotion of mineral development and liaises between industry and government (Addy, 1998). The GEPA is responsible for regulating and implementing environmental policies (Babut et al., 2003) while PMMC was mandated to promote the development of small-scale gold and diamond mining and to serve as the production market center from licensed buyers (Addy, 1998). Other existing national bodies that are mandated with mineral development before the launch of the ERP were the Geological Survey Department, Lands Commission, Mines Department, Ministry of Mines and Energy, and Ministry of Fuel and Power. The Geological Survey Department conducts geological mapping to delineate the location of ores and similar studies while the Lands Commission is responsible for records of exploration licenses and mining leases. The Mines Department oversees mine safety, energy and mineral fuel policy formulation while licensing and exploration are under the authority of Ministry of Fuel
and Power; finally, the authority over all aspects of the mineral industry is under the Ministry of Mines and Energy (Addy, 1998).

The reforms of national laws during the early 1980s to attract mineral investments was not restricted to mineral-rich nations of Africa but to other mineral-rich developing countries especially in Latin American countries such as Chile, Bolivia as outlined above. Reformed mining laws became a competitive factor for mineral-rich nations and a mineral investors determinant for making investments in a particular country. After the global mineral-rich nation’s reforms of national laws of the 1980s, the Latin American countries continued to amend their laws to include legal protection for investors. This attracted significant investments to their mineral sector and the laws were adopted as the blue prints for mineral-rich countries in Africa. Faced with increasing competition from mineral nations, Ghana revised its 1986 Minerals and Mineral law in 2006 to incorporate current elements of international best practice as present in the laws of Latin American countries. The major weakness in the Ghana’s Mineral and Mining Law of 1986 prior to the reforms that might have discouraged investments include:

- Significant discretion powers to minister responsible for mines, lack of time frames for mineral application (acquisition, renewal and transfer), no clear procedure for allocation for mineral rights
- The absence of an internationally legally binding dispute settlement requirements between mineral investor and the government of Ghana
- A weak compensational system that has resulted in numerous clashes between investors and local communities
• Lack of clear-cut demarcation of concessions; and

• Tax incentives and other fiscal regimes to encourage investment

Therefore the 1986 Mining law (1986, PNDCL 153) was modified and replaced by the new Minerals and Mining Law (2006, Act 703) in 2006 (Akabzaa, 2009; Mining Portal of Ghana, 2006). The government of Ghana described the new law as an internationally competitive framework aimed to reflect current strategies and developments in the global mining industry. The new mineral and mining law is designed to attract mineral investors, provide strong legal base and equitable tax regime with the best environmental management for maximum benefits from the industry, and environmental protection and community interest for sustainable development of the mining industry (Akabzaa, 2009; Mining Portal of Ghana, 2006).

5.5 Comparative Overview of Minerals and Mining Laws: PNDCL 153, 1986 versus Act 703, 2006

5.5.1 Regulatory and Fiscal Regimes

The main difference between the old mining law (1986, PNDCL 153) and new mining law (2006, Act 703) are in the legal rights protections for investors, and fiscal regimes-tax incentives are outlined in Tables 5-4 and 5-5 respectively. A comparison between the laws in the sixteen subject areas highlights the adjustments and additions to the old law (PNDCL 153). There are nine upgraded items (item #’s: 2, 4,5,6,8,9,13-15), six new items (item #’s: 3,4,10-12, 16) and two unchanged items (#item’s 1 and 7), (Table 5-4). The fiscal and related provisions of the mining and mineral reforms and the
Table 5-4: A comparative overview of PNDCL 153 vrs Act 703

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ownership of minerals</td>
<td>Existed under the old law</td>
<td>All minerals in their natural state found anywhere within the jurisdiction of the Ghanaian government is the property of the Republic, thus government has the right of pre-emption. The Minister of Lands and Natural Resources (“the Minister”), on behalf of the President, is mandated under the Act to grant, revoke, suspend or renew mineral rights, on the advice and recommendation of the Minerals Commission.</td>
</tr>
<tr>
<td>2</td>
<td>Application for mineral right</td>
<td>The Minister was not required to give any reasons for refusing an application for a mineral right.</td>
<td>The Minister is required to give written reasons where an application is not granted or the application is granted over part of the land. [S.5].</td>
</tr>
<tr>
<td>3</td>
<td>Cadastral system</td>
<td>Did not exist under the old law. Mineral concessions were limited in size only (in sq km) and could be of any shape.</td>
<td>A method by which the country is divided into geographical blocks of 21 hectares each. Applications for mineral rights can be made in multiples of blocks, which should be contiguous. Fractions of blocks are not acceptable except for block’s parts that lie outside the country [S.8].</td>
</tr>
<tr>
<td>4</td>
<td>Grant of mineral rights</td>
<td>No limits on duration of application process.</td>
<td>Upon receipt of a mineral right application, the Minerals Commission must submit its recommendations to the Minister within 90 days of receipt of the application [S.12].</td>
</tr>
<tr>
<td>5</td>
<td>Records of mineral right holders</td>
<td>Records were kept by the Minister, and were open to public inspection upon the payment of a fee. No records were treated as confidential</td>
<td>Mineral right holders are to furnish the minerals’ commission with reports/records on their mining operations and geological information, which shall be treated as confidential as long as the holder retains the mineral right. The information may, however, be divulged with the prior written consent of the holder [S. 19, 20, 21].</td>
</tr>
<tr>
<td>6</td>
<td>Dispute resolution</td>
<td>Provision existed under the old law, but was restricted to fiscal Issues.</td>
<td>Similar provision exists under the new law. It is applicable to any dispute under the Act. Disputing parties may settle disputes through mutual discussion, and arbitration. Foreign holders may also resort to international arbitration [S. 27]</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>--------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Transferability of capital</td>
<td>Existed under the old law</td>
<td>Holder may retain foreign exchange earnings from mining operations for use in acquiring spare parts, and other mining inputs. The percentage to be retained is to be agreed by the Minister and the Minister of Finance [S.30]</td>
</tr>
<tr>
<td>8</td>
<td>Amendment of prospecting programme</td>
<td>A holder of a prospecting license (PL) seeking to amend his work program was required to seek the Minister's approval</td>
<td>The holder is only required to notify the Minister of an amendment to the prospecting program [S.36]</td>
</tr>
<tr>
<td>9</td>
<td>Grant of mining lease</td>
<td>It was not clear that once a holder of a PL had expended so much on exploration, a Mining Lease (ML) could be granted</td>
<td>A holder of a Reconnaissance Licence (RL) or a Prospecting Licence (PL), who applies for mining lease and has materially complied with the obligations under the law, may be recommended for the grant of a mining lease within a specified period [S. 39(2)]</td>
</tr>
<tr>
<td>10</td>
<td>Application for mining lease by any other person</td>
<td>No such provision</td>
<td>A person, not necessarily a holder of an RL or PL, may apply for a mining lease [S.40].</td>
</tr>
<tr>
<td>11</td>
<td>Stability Agreement</td>
<td>No such provision</td>
<td>This replaced the former deed of warranty executed between the Government and mining companies. It seeks to protect the holder of a mineral right for a period of 15 years, from any adverse effects of future changes in law that are capable of imposing huge financial burden on the holder [S. 48]</td>
</tr>
<tr>
<td>12</td>
<td>Development Agreement</td>
<td>No such provision</td>
<td>The Minister may enter a development agreement (DA) with the holder of /applicant for a mining lease if the investment exceeds US $500 million. The DA may contain terms on the stability agreement, in addition to terms relating to mineral rights and operations to be conducted under the lease, the way the Minister will exercise discretion conferred by or under this act and relating to environmental issues or other enactments to safeguard public health. This agreement is subject to ratification by parliament [S.49].</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>13</td>
<td>Vesting of property on termination of mineral right</td>
<td>Upon termination of a mining lease, all immovable assets of the holder were vested in the Republic. Movable assets that are fully depreciated for tax purposes were vested in the Republic too. Movable assets not fully depreciated were first offered to the Republic on sale, before being disposed of by the holder.</td>
<td>Movable and immovable assets are collectively described as &quot;plant&quot;; and a holder may remove the plant upon termination of the mining lease, provided the holder or a person deriving title through him uses it in another relevant mining activity in the country. Otherwise, the plant vests in the Republic [S.70]</td>
</tr>
<tr>
<td>14</td>
<td>Compensation</td>
<td>Limited provision on compensation</td>
<td>A more comprehensive compensation provision. Compensation issues have been clarified and simplified. Alternate settlement has been included as compensation to land owners. Compensation is also to be paid for deprivation of the use/benefit of surface rights, etc.; The compensation principles are set out in the law, and the landowner may apply to the High Court for determination of compensation, where the parties disagree on the terms of the package [S. 72 - 75]</td>
</tr>
<tr>
<td>15</td>
<td>Industrial minerals</td>
<td>Restricted to only Ghanaians. Noncitizens may, however be considered by the Minister</td>
<td>Application for industrial minerals is the same as for other minerals. Non-citizens may also apply for a mineral right in respect of industrial minerals where the proposed investment is not less than US$10million [S.76 - 80]</td>
</tr>
<tr>
<td>16</td>
<td>Preference for local products and employment of Ghanaians</td>
<td>Existed under the old law</td>
<td>Requires a holder of a mineral right to give preference to materials and products of Ghanaian origin, and to the employment of Ghanaians to the maximum extent possible</td>
</tr>
</tbody>
</table>

**Source:** Ghana’s country Paper to UNSCD, 2010
Table 5-5: Comparisons of the fiscal and related provisions of the minerals and mining legislations of 1986 and 2006

<table>
<thead>
<tr>
<th>Items</th>
<th>PNDCL 153, 1986</th>
<th>Amendments to Law 153, the Minerals and Mining Amendment Act 1993</th>
<th>ACT 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incentives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Capital allowance</td>
<td>75%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>Subsequent capital allowance</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Investment allowance</td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Carried forward losses for purposes of taxations</td>
<td>Up to five years</td>
<td>Up to five years</td>
<td></td>
</tr>
<tr>
<td>Offshore retention sales</td>
<td>25% to 80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D allowance</td>
<td>Exempt</td>
<td>Exempt</td>
<td></td>
</tr>
<tr>
<td>Mineral duty</td>
<td>Exempt</td>
<td>Exempt</td>
<td></td>
</tr>
<tr>
<td>Import duty</td>
<td>Exempt</td>
<td>Exempt</td>
<td></td>
</tr>
<tr>
<td>Foreign exchange tax</td>
<td>Exempt</td>
<td>Exempt</td>
<td></td>
</tr>
<tr>
<td>Import license tax or import levy</td>
<td>Exempt</td>
<td>Exempt</td>
<td></td>
</tr>
<tr>
<td>Gold export levy</td>
<td>Exempt</td>
<td>Exempt</td>
<td></td>
</tr>
</tbody>
</table>
Table 5-5: Continued

<table>
<thead>
<tr>
<th>Items</th>
<th>Amendments to</th>
<th>PNDCL 153, 1986</th>
<th>Law 153, the Minerals and Mining Amendment Act 1993</th>
<th>ACT 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate income tax</td>
<td>45%</td>
<td>35%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Royalty</td>
<td>3% to 12%</td>
<td>3% to 6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withholding tax</td>
<td>10%</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital gain tax</td>
<td>10%</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Profit Tax</td>
<td>25%</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Reconstruction Levy</td>
<td>2% of before tax</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government equity participation in a mining lease</td>
<td>10% free carried interest with option to increase to 30% provided additional shares purchased at a market price</td>
<td>10% free carried interest, no option for acquisition of further shares</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Akabzaa (2006)
various differences between the two laws as listed in Table 5-5. Specifically, the government retained all the incentives for the mineral investor but modified the percentages of corporate income and royalty taxes; and abolished additional profit tax and national reconstruction levy (Akabzaa, 2009, Table 5-5). These measures were aimed to release more resources to the private sector for expansion and jobs creation (Tax Policies and Administrative measures, 2006); however, they led to significant reduction in the government’s revenue. Although the 25% reduction in corporate income tax was in conformity with the that for other industries, the change in the percentage of mining royalty from 3%-12% in 1986 to 3% to 6% in 2006 of quantity of gold produced or gross sales (thus independent of profitability) represents a significant reduction in government revenue (Table 5-5).

5.5.2 Environmental Framework

The mineral and mining law of Ghana maintained the mandate regarding environmental matters concerning mining to the forestry commission and GEPA. The forestry commission is responsible for the management and utilization of the nation’s forest and wildlife resources (Mining Portal of Ghana, 2006). The GEPA is charged with the responsibility of regulating and implementing environmental policies (Babut et al., 2003). The most significant environmental requirement that affects the mining industry is the Environmental Impact Assessment, (Waye et al., 2006). The legal frameworks that govern the Environmental Impact Assessment (EIA) process in Ghana are:
Constitution of Ghana, Act 490 established the GEPA to ensure environmentally sound developments in Ghana

- Environmental Protection Agency (EPA) Act, 1994 (Act 490)
- Ghana Environmental Assessment Regulations 1999, LI 1652
- Environmental Impact Assessment Procedures, June 1995

The EIA requires any projects with significant impacts on the environment to register with the EPA and obtain environmental permits prior to the beginning of any construction work and/or operations. The mining and processing of minerals in areas where the mining lease covers a total area in excess of 10 hectares requires an EIA (Environmental Assessment Regulations 1999). Figure 5-2 below outlines the EIA procedure. An application for environmental permits is made including the payment of the prescribed fees to the GEPA. In consultation with a committee drawn from various sectors of the economy (Appiah-Opoku, 2001), the GEPA screens the application to examine the environmental characteristics and whether it requires EIA or not. Where EIA is required, the applicant will prepare a scoping report in consultation with the stakeholders (interested and affected parties) of the proposed project (Figure 5-2). A scoping report details the extent of environmental impact assessment to be carried out, and includes the draft terms of reference, which provides the essential items to be
addressed in EIS (Catwood et al., 2006). Following the outcome of the scoping report, the applicant will have to commission a full-scale EIS. An EIS for a mining project must have a reclamation bond. A bond set aside in a reputable bank agreed upon by the agency and the mineral developer as a security deposit against default on reclamation or rehabilitation of disturbed land arising out of the project (Environmental Assessment Regulation, 1999). The report is then evaluated in conjunction with the cross-sectoral technical committee and graded from excellent (Grade A: no tasks left incomplete) to the worst (Grade F: important tasks poorly done or not attempted), (Appiah-Opoku, 2001).

The preliminary approval result is the issuance of an 18-month provisional permit for the mining activity to commence on environmental grounds, while attempts are made to address inadequacies, if any in the EIS. The permit is regularized within a time span of up to 24 months of its issuance and the project commissioned based on satisfaction of the specified requirement. A copy of accepted EIS report will then be sent to appropriate local authorities to be made public. The GEPA, through newspaper advertisements and postings at appropriate public places gives a 21-day public notice for public input. If a strong public concern over the proposed undertaking is expressed, the GEPA appoints a panel of three to five persons to hold public hearings. Where the applicant is not satisfied with unfavorable decisions, there is a right of appeal to the minister responsible for the environment that appoints a board to hear the appeal and take a final decision on the proposed undertaking.
Figure 5-2: Administrative profile of EIA procedure in Ghana. Source: Appiah-Opoku, 2001
The mineral investment policy reforms led to the current attractive investment policies and the resultant significant contribution of the mineral sector to the Ghanaian economy (Table 5-3). Nevertheless, the reforms were intended to take cognizance of environmental protection and community interests in order to provide the basis for sustainable mineral development (Mining Portal of Ghana, 2006). As a result, it is necessary to investigate the Ghanaian government policy against a broader economic, environmental and social management framework, which goes beyond the attraction of mineral investors. This study aims to examine the 2006 Minerals and Mining Law of Ghana within the context of sustainable mineral development.

5.6 Methods

The objectives of the study are to:

- Investigate whether the 2006 Minerals and Mining Law of Ghana is based on the LAML, the international best practice for mineral investment,

- Develop a sustainable mineral development model,

- Evaluate the 2006 Minerals and Mining Law of Ghana within the context of the proposed sustainable mineral development model.

First, a qualitative content analysis was conducted to determine the compatibility of the provisions of the 2006 Minerals and Mining Law of Ghana (Acts 703, 2006) with the
composition (description of the item #’s) of the LAMLM listed in Table 5-2. The extent of the compatibility was labeled either as high, moderate, or none in decreasing order of congruency (Table 5-6). Furthermore, the investment best practice model (Table 5-1) and the responsible mining model derived from literature (Table5-2) were integrated to develop a sustainable mineral development model. Finally, by a similar compatibility test as described above, the new Minerals and Mining Law of Ghana was evaluated within the context of the proposed sustainable mineral development model.

5.7 Results

Two decades after the enactment of the Ghanaian Minerals and Mining Law, (PNDC Law 153) in 1986, these reforms were necessary to enable Ghana to continue to attract and retain mining investment due to current developments. Nevertheless, the Government of Ghana was expected to incorporate the elements of sustainable mineral development practices into these reforms for a long-term national benefit.

5.7.1 Evaluation of Minerals and Mining Law of 2006 against the International Best Practice form Investment (LAMLM)

Table 5-6 below illustrates the new Minerals and Mining law of Ghana (Acts 703, 2006) vis-à-vis the elements of the international best practice for attraction of mineral investors. Among the attractive investment package of the new Minerals and Mining law of Ghana are tax incentives (item 15, Table 5-6), legal protections (items 6-8, Table 5)
stability clause and development agreement (item 8, Table 5-6). The law also has provisions for prior informed consent of community groups where mining and related activities can affect farm and fallow land (item # 9, Table 5-6). In addition, the Government of Ghana exercises eminent domain rights on all natural resources present within the territory of Ghana (items # 1 and 2, Table 5-6). The current provision is clearer on the surface right and compensational issues where a surface mining lease will cover a farm and similar land use (item # 9, Table 5-6) and dispute settlement mechanism including the high court should any disagreement on the terms of the compensation rise (item #10, Table 5-6).

The sector minister responsible for mining is now required to give reasons for the refusal or partly approval of any minerals right application (item # 5, Table5-6). To improve and streamline the mineral acquisition process and to avoid concession ownership disputes, the Ghanaian mineral concessions are now divided into geographical blocks that are twenty-one hectares each (item # 3, Table 5-6). The provisions grants flexibility to mineral investors to negotiate with the minister on the percentage of foreign exchange they can retain or transfer for acquiring mining inputs such as spare parts (item #15, Table 5-6). This helps mineral investors easily acquire those inputs without the need for foreign-currency exchange and its associated market fluctuations. The law extends dispute settlement issues beyond fiscal regimes to any disputes under the Act. Disputes may be settled locally through mutual discussions and arbitrations while foreign mineral right holders may resort to international arbitration processes (item item #'s 6 and 7, Table 5-6). The provisions in this new law that has substantially increased the bargaining
**Table 5-6:** Evaluation of the 2006 minerals and mining law of Ghana against the mineral investment best practice model

<table>
<thead>
<tr>
<th>Best Practice Area</th>
<th>Item #</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Ownership</td>
<td>1</td>
<td>●</td>
<td><strong>Section 1 &amp; 2:</strong> All minerals in their natural state found on anywhere within the jurisdiction of the Ghanaian government is the property of the Republic, thus, government has the right of pre-emption. The minister for lands and natural resources (“the minister”), on behalf of the president, is mandated under the act to grant, revoke, suspend or renew mineral rights, on the advice and recommendation of the minerals commission.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>●</td>
<td><strong>Section 12:</strong> Upon receipt of a mineral right application, the minerals commission must submit its recommendations to the minister within 90 days of receipt of the application in order of submission.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>●</td>
<td><strong>Section 8:</strong> A method by which the country is divided into geographical blocks of 21 hectares each. Applications for mineral rights can be made in multiples of blocks, which should be contiguous. Fractions of blocks are not acceptable except for blocks' parts of which lie outside the country that are considered as full blocks.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>●</td>
<td><strong>Section 69 (1-2):</strong> Without limiting the scope of section 68, the minister may on the recommendation of the commission suspend or cancel a mining lease or a restricted mining lease if the holder has failed other than for good cause, for a period of two years or more, to carry out any or a material part of the holder’s program or mineral operations. (2) The minister shall before suspending or canceling a mining lease give notice to the holder and shall require in the notice that the holder to remedy the breach within a reasonable period, being not less than 120 days, and where the breach cannot be remedied, to show cause to the reasonable satisfaction of the minister why the mining lease or restricted mining lease should not be suspended or cancelled. <strong>Section 18 (1-2):</strong> (1) Before undertaking an activity or operation under a mineral right, the holder of the mineral right shall obtain the necessary approvals and permits required from the Forestry commission and the Environmental protection agency for the protection of natural resources, public health and the environment. (2) Without limiting subsection (1), a holder of a mineral right shall comply with the applicable regulations made under this Act and any other enactment for the protection of the environment in so far as relates to exploitation of minerals</td>
</tr>
</tbody>
</table>

**Key:** ● = High ○ = moderate ▼ = none
<table>
<thead>
<tr>
<th>Best Practice Area</th>
<th>Item #</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security of Investments</td>
<td>5</td>
<td>○</td>
<td>Section 14 (1-4): (1) A mineral right shall not in whole or in part be transferred, assigned, mortgaged or otherwise encumbered or dealt in a manner without the prior approval in writing of the minister, which approval shall not be unreasonably withheld or given subject to unreasonable conditions. (2) Where the minister has not given a decision in writing to the applicant, within thirty days of receipt of an application for approval, the minister shall upon request from the applicant give written reasons to the applicant for the failure to communicate a decision on the application. (3) The reasons required under subsection (2) shall be sent to the applicant within fourteen days of receipt of the request. (4) A dispute between the minister and an applicant or holder in respect of a decision of the Minister under subsection (1), shall be referred for resolution under section 27 failure to communicate a decision on the application.</td>
</tr>
<tr>
<td>Legal Protections</td>
<td>6 &amp; 7</td>
<td>●</td>
<td>Section 27(1-5): Dispute resolution is applicable to any dispute under the Act. Disputing parties may settle disputes through mutual discussion, and arbitration. Foreign holders may also resort to international arbitration avenues.</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>●</td>
<td>Section 48: The minister may as a part of a mining lease enter into a stability agreement with the holder of the mining lease, to ensure that the holder of the mining lease will not, for a period not exceeding fifteen years from the date of the agreement, (a) be adversely affected by a new enactment, order instrument or other action made under a new enactment or changes to an enactment, order, instrument that existed at the time of the stability agreement, or other action taken under these that have the effect or purport to have the effect of imposing obligations upon the holder or applicant of the mining lease, and (b) be adversely affected by subsequent changes to (i) the level of and payment of customs or other duties relating to the entry materials, goods, equipment and any other inputs necessary to the mining operations or project, (ii) the level of and payment of royalties, taxes, fees and other fiscal imports, and (iii) laws relating to exchange control, transfer of capital and dividend remittance (2) A stability agreement entered into under subsection (1) shall be subject to ratification by parliament.</td>
</tr>
</tbody>
</table>

Key: ● = High ○ = moderate ○ = none
Table 5-6: Continued

<table>
<thead>
<tr>
<th>Best Practice Area</th>
<th>Item #</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Section 49:</strong> (1) The minister on the advice of the commission may enter a development agreement under a mining lease with a person where the proposed investment by the person will exceed US$ five hundred million. (2) A development agreement may contain provisions (a) relating to the mineral right or operations to be conducted under the mining lease, (b) relating to the circumstance or manner in which the minister will exercise a discretion conferred by or under this Act, (c) on stability terms as provided under section 48, (d) relating to environmental issues and obligations of the holder to safe-guard the environment in accordance with this Act or another enactment, and (e) dealing with the settlement of disputes. (3) A development agreement is subject to ratification by Parliament.</td>
</tr>
<tr>
<td>Land Access and Compensation</td>
<td>9</td>
<td>●</td>
<td><strong>Section 72:</strong> Surface right</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Section 72:</strong> Compensation for disturbance of owner’s surface rights.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>●</td>
<td><strong>Section 74:</strong> Compensation principle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Section 75:</strong> Access to the court in respect of compensation</td>
</tr>
<tr>
<td>Environmental Issues</td>
<td>11-14</td>
<td>●</td>
<td>A hybrid approach to addressing environmental impacts as required by the Ghanaian EPA.</td>
</tr>
<tr>
<td>Fiscal Regimes</td>
<td>15</td>
<td>●</td>
<td><strong>Section 30:</strong> Holder may retain foreign exchange earnings from mining operations for use in acquiring spare parts, and other mining inputs. The percentage to be retained must be agreed by the minister and the minister for finance and as outlined in Table 5-4.</td>
</tr>
<tr>
<td>Royalty</td>
<td>16</td>
<td>●</td>
<td>A holder of a mining lease either a restricted mining lease or small-scale mining license shall pay a royalty that may be prescribed in respect of minerals obtained from its mining operations to the republic, except that the rate of royalty shall not be more than 6% or less than 3% of the total revenue of minerals obtained by the holder.</td>
</tr>
<tr>
<td>Administrative Process and Government role</td>
<td>17</td>
<td>●</td>
<td><strong>Section 8:</strong> Cadastral system to quick information access to mineral investors; <strong>Section 36:</strong> Amendment of prospecting program to fast track upgrade of a mining license; <strong>Section 39(2):</strong> Grant of mining lease to fast track upgrade of mining license <strong>Section 40:</strong> Application of a mining lease by another person to fast track mining license.</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>●</td>
<td><strong>Section 5 (1-9) and 14 (1-4)</strong> illustrates the limited power of the minister of mines in the grant, transfer and termination of mineral rights.</td>
</tr>
</tbody>
</table>

**Key:** ● = High ☑ = moderate ○ = none
power of mineral investors are the stability and development agreements (item # 8, Table 5-6).

5.7.2 Evaluation of the Minerals and Mining Law of 2006 against the Sustainable Mineral Development Model for Mineral Investments

The features of the sustainable mineral development model are listed in Table 5-7. A mineral investment policy that strongly focuses on all the items of the model is described in this study as an ideal sustainable mineral development policy. Ghana’s new Minerals and Mining law, an international best practice was analyzed within the sustainable mineral development framework (Table 5-8). There are 28 items of sustainable mineral development best practices and 16 of which were strongly compatible with the new Ghanaian Minerals and Mining law. Further, four items of the Ghanaian Minerals and Mining law were moderately compatible with the features of the sustainable mineral development best practices (Table 5-8). Finally, eight features of the law showed non-compatibility with the elements of sustainable mineral development best practice. The features of the new Ghanaian Minerals and Mining law show high compatibility with sustainable mineral development best practice model in the areas of mineral ownership (items # 1, 2, 3; Table 5-8), disposition of minerals (items # 4,5,6; Table 5-8) and legal protections (items #’s 9, 10 and 11, Table 5-8). In addition, the other areas of high
Table 5-7: Characteristics of the sustainable mineral development model

<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item #</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mineral ownership</strong></td>
<td>1.</td>
<td>State ownership of mineral granted by the constitution of the republic.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>State mandated to set the regime for acquisition, maintenance, transfer and cancellation of mineral.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>State mandated to establish rights and obligations of parties and dispute resolutions.</td>
</tr>
<tr>
<td><strong>Disposition of minerals</strong></td>
<td>4.</td>
<td>Access to concessions granted in order of application after meeting certain requirements.</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Area of a concession are defined by cadastre system and granted by title registration.</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Different requirements for maintaining mineral right and operating under the mineral right.</td>
</tr>
<tr>
<td><strong>Enforcement mechanisms</strong></td>
<td>7.</td>
<td>Financial guarantee such as trusts, bonds or financial sureties to guarantee performance, requirements to maintain mineral and operating rights before carrying out the mining. Failure to comply authorizes the government to collect the amount of the guarantee.</td>
</tr>
<tr>
<td><strong>Security of investments</strong></td>
<td>8.</td>
<td>Mineral (exploration) rights under the concessional system function as a real property that can be freely transferable, mortgageable and protected by the law.</td>
</tr>
<tr>
<td><strong>Legal protections</strong></td>
<td>9.</td>
<td>International arbitration: options beyond diplomatic negotiations to settle state-to-state investment disputes and investor-state disputes that involve a supervising institution after exhaustion of domestic legal remedies.</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Expropriation: (against government outright taking of properties of the mineral industry or indirect takings through regulatory measures and slow encroachment on the ownership rights of foreign investor that will result in loss of management, use or control, or significant depreciation of the value of the assets).</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>Stabilization clauses: seek to preserve the law of the host country as it applies to the investment at the time that the contract is concluded which ensure future's changes to the law of the host country are inapplicable to the foreign investment contract within a period normally 10years and beyond.</td>
</tr>
<tr>
<td><strong>Land access and compensation</strong></td>
<td>12.</td>
<td>Mineral developers to reach accessibility and compensational agreement of their potential impacts with landowners who have surface right to the licensed concession.</td>
</tr>
<tr>
<td><strong>Environmental issues</strong></td>
<td>13.</td>
<td>Dispute resolution mechanism stated in the law.</td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td>Central approach (laws apply to all sectors) and sectoral approach (applicable to mining industry only) to address environmental impacts of mining and hybrid approach via requirements for environmental impact assessment (EIA).</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>Citizen participations granted in the form of contributions of the EIA effectiveness through public hearings.</td>
</tr>
<tr>
<td></td>
<td>16.</td>
<td>Opportunity to have access to relevant environmental information and public hearings in environmental matters related to mineral development.</td>
</tr>
</tbody>
</table>
Table 5-7: Continued

<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item #</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fiscal regimes</strong></td>
<td>17.</td>
<td>Decreasing taxation and Incentives</td>
</tr>
<tr>
<td><strong>Royalty</strong></td>
<td>18.</td>
<td>A 0-6% flexible royalty system (not negotiable royalty system) based on the value of mineral concentrate, or overall annual net sale or profits of mining companies</td>
</tr>
<tr>
<td><strong>Administrative process and government’s role</strong></td>
<td>19.</td>
<td>Streamlined application and approval of mineral rights application</td>
</tr>
<tr>
<td></td>
<td>20.</td>
<td>Reduces the condition of exclusive discretion of government or governmental body and grant.</td>
</tr>
<tr>
<td></td>
<td>21.</td>
<td>Access to contest a decision where such governmental discretion is inevitable</td>
</tr>
<tr>
<td><strong>Enforcement mechanisms (except warnings, fines, criminal and civil mechanism, temporary to complete shutdown)</strong></td>
<td>22.</td>
<td>New enforcement approaches by financial guarantees such as trusts, bonds or financial sureties to guarantee performance before carrying out the mining. Failure to comply with the required standards authorize the government to collect the amount of the guarantee</td>
</tr>
<tr>
<td></td>
<td>23.</td>
<td>Participation of local communities in concession development of all the phase of the mineral development that could impact on their livelihoods</td>
</tr>
<tr>
<td><strong>Co-ownership of the natural resource for the communities with ancestral ties to the mineral concession</strong></td>
<td>24.</td>
<td>Transparency and easy access to information related to the mineral development (records/reports on mineral explorations and geological information) and availability of free public information about any mineral investment. Transparency and public access of information through the provisions of all mining and environmental permitting documents online for public consumption; thus removal of confidentiality clauses in mineral agreements</td>
</tr>
<tr>
<td></td>
<td>25.</td>
<td>Public disclosure about the requirement for return of a reclamation bond and potential for an opportunity for the public to file for a legal challenge if company has not adequately met the terms of closure</td>
</tr>
<tr>
<td><strong>Hypothecated tax system</strong></td>
<td>26.</td>
<td>Mechanism for the transformations of mineral wealth into investments in the form of dividends for economic diversifications, social development and environmental protection rather than through a consumption</td>
</tr>
</tbody>
</table>
Table 5-7: Continued

<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item #</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Restricted access to mineral lands defined as Non-mining zones</strong></td>
<td>27</td>
<td>provisions that define areas of ecological value or sensitivity as protected or restricted area such as forest reserves as non-mining zones and prescribed distance from communities where a mineral waste dump may be sited</td>
</tr>
<tr>
<td><strong>Enhanced traditional administrative punitive actions</strong></td>
<td>28</td>
<td>Policy defines the mechanism such as sustainability credits for an impact from the natural environment by say providing potable water to another region after the polluting one or the combination of both and other mining related incidents and accidents common with local communities that could damage ecological services of natural resource</td>
</tr>
</tbody>
</table>

Table 5-8: Evaluation of the minerals and mining law of Ghana against the sustainable mineral development model

<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item #</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral ownership</td>
<td>1, 2 &amp; 3</td>
<td>●</td>
<td>Section 1 and 2: All minerals in their natural state found on anywhere within the jurisdiction of the Ghanaian government is the property of the republic. Thus, government has the right of pre-emption. The minister for lands and natural resources (“the minister”), on behalf of the president, is mandated under the act to grant, revoke, suspend or renew mineral rights, on the advice and recommendation of the minerals commission</td>
</tr>
<tr>
<td>Disposition of minerals</td>
<td>4</td>
<td>●</td>
<td>Section 12: Upon receipt of a mineral right application, the minerals commission must submit its recommendations to the minister within 90 days of receipt of the application in order of application</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>●</td>
<td>Section 8: A method by which the country is divided into geographical blocks of 21 hectares each. Applications for mineral rights can be made in multiples of blocks, which should be contiguous. Fractions of blocks are not acceptable except for blocks’ part of which lie outside the country, which are considered as full blocks</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>●</td>
<td>Section 18 (1-2): (1) Before undertaking an activity or operation under a mineral right, the holder of the mineral right shall obtain the necessary approvals and permits required from the forestry commission and the environmental protection agency for the protection of natural resources, public health and the environment. (2) Without limiting subsection (1), a holder of a mineral right shall comply with the applicable regulations made under this act and any other enactment for the protection of the environment in so far as relates to exploitation of minerals</td>
</tr>
<tr>
<td>Enforcement mechanisms (except warnings, fines, criminal and civil mechanism, temporary to complete shutdown)</td>
<td>7</td>
<td>●</td>
<td>Environmental Assessment Regulation, 1999. An EIS for a mining project must have a reclamation bond. This is the fund set aside in a reputable bank agreed upon by the environmental agency and the mineral developer as a security deposit against default on reclamation or rehabilitation of disturbed land arising out of the undertaking</td>
</tr>
</tbody>
</table>

Key: ● = High; ○ = Moderate; ○=None
### Table 5-8: Continued

<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item #</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Security of investments</strong></td>
<td>8</td>
<td>O</td>
<td>Section 14 (1-4): (1) A mineral right shall not in whole or in part be transferred, assigned, mortgaged or otherwise encumbered or dealt in, in a manner without the prior approval in writing of the minister, which approval shall not be unreasonably withheld or given subject to unreasonable conditions. (2) Where the minister has not given a decision in writing to the applicant, within thirty days of receipt of an application for approval, the minister shall upon request from the applicant give written reasons for the failure to communicate a decision on the application. (3) The reasons required under subsection (2) shall be sent to the applicant within fourteen days of receipt of the request. (4) A dispute between the minister and an applicant or holder of the mineral right in respect of a decision of the minister under subsection (1), shall be referred for resolution under section 27 failure to communicate a decision on the application.</td>
</tr>
<tr>
<td><strong>Legal protections</strong></td>
<td>9&amp; 10</td>
<td>●</td>
<td>Section 27(1-5): Dispute resolution is applicable to any dispute under the act. Disputing parties may settle disputes through mutual discussion, and arbitration. Foreign holders may also resort to international arbitration avenues.</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>●</td>
<td>Section 48: The minister may as a part of a mining lease enter into a stability agreement with the holder of the mining lease, to ensure that the holder of the mining lease will not, for a period not exceeding fifteen years from the date of the agreement, (a) be adversely affected by a new enactment, order instrument or other action made under a new enactment or changes to an enactment, order, instrument that existed at the time of the stability agreement, or other action taken under these that have the effect or purport to have the effect of imposing obligations upon the holder or applicant of the mining lease, and (b) be adversely affected by subsequent changes to (i) the level of and payment of customs or other duties relating to the entry materials, goods, equipment and any other inputs necessary to the mining operations or project, (ii) the level of and payment of royalties, taxes, fees and other fiscal imports, and (iii) laws relating to exchange control, transfer of capital and dividend remittance (2) A stability agreement entered into under subsection (1) shall be subject to ratification by parliament.</td>
</tr>
</tbody>
</table>

**Key:** ● = High; O = Moderate; O = None
<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item #</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Section 49: (1) The minister on the advice of the commission may enter into a development agreement under a mining lease with a person where the proposed investment by the person will exceed US$ five hundred million. (2) A development agreement may contain provisions, (a) relating to the mineral right or operations to be conducted under the mining lease, (b) relating to the circumstance or manner in which the minister will exercise a discretion conferred by or under this Act, (c) on stability terms as provided under section 48, (d) relating to environmental issues and obligations of the holder to safe-guard the environment in accordance with this act or another enactment, and (e) dealing with the settlement of disputes. (3) A development agreement is subject to ratification by parliament.</td>
</tr>
<tr>
<td>Land access and compensation</td>
<td>12</td>
<td>●</td>
<td>Section 72: surface right Section 73: compensation for disturbance of owner’s surface rights Section 74: compensation principles Section 75: access to the court in respect of compensation</td>
</tr>
<tr>
<td>Environmental issues</td>
<td>14</td>
<td>●</td>
<td>Environmental Assessment Regulation, 1999: a hybrid approach of addressing environmental impacts as required by the GEPA</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>●</td>
<td>Environmental Assessment Regulation, 1999: A citizen participates in the review of mining impacts however only during EIA process.</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>●</td>
<td>Limited opportunities present due to the confidentiality clause. Section 19-21: Mineral right holders are to furnish the mineral commission with reports/records on mineral operations and geological information, which shall be treated as confidential as long as the holder retains the mineral right. The information however be divulged with the prior written consent of the holder</td>
</tr>
</tbody>
</table>

Key: ● = High; ○ = Moderate; ◌ = None
Table 5-8: Continued

<table>
<thead>
<tr>
<th>Sustainable development best practice area</th>
<th>Item</th>
<th>Compatibility</th>
<th>Legal basis: Minerals and Mining Law: Act 703, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fiscal regimes</strong></td>
<td>17</td>
<td>●</td>
<td>Section 30: Holder may retain foreign exchange earnings from mining operations for use in acquiring spare parts, and other mining inputs. The percentage to be retained must be agreed by the minister and the minister for finance and as outlined in Table 5-3.</td>
</tr>
<tr>
<td><strong>Royalty system</strong></td>
<td>18</td>
<td>●</td>
<td>A holder of a mining lease restricted mining lease or small scale mining license shall pay royalty that may be prescribed in respect of minerals obtained from its mining operations to the republic, except that the rate of royalty shall not be more than 6% or less than 3% of the total revenue of minerals obtained by the holder.</td>
</tr>
<tr>
<td><strong>Administrative process and government role</strong></td>
<td>19, 20 &amp; 21</td>
<td>●</td>
<td>Section 8: cadastral system to quick information access to mineral investors; Section 36: amendment of prospecting program to fast track upgrade of mining license; Section 39(2): grant of mining lease to fast track upgrade of mining license; Section 40: application of mining lease by another person to fast track mining license Section 5 (1-9) and 14 (1-4) illustrate limited power of the minister for mines in the grant, transfer and termination of mineral rights</td>
</tr>
<tr>
<td><strong>Co-ownership of the natural resource for the communities with ancestral ties to the mineral concession land</strong></td>
<td>22</td>
<td>○</td>
<td>No Provision</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>○</td>
<td>No Provision</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>○</td>
<td>No Provision</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>○</td>
<td>No Provision</td>
</tr>
<tr>
<td><strong>Hypothecated tax system</strong></td>
<td>26</td>
<td>○</td>
<td>No efficient disbursement mechanism of gold mining for local community development</td>
</tr>
<tr>
<td><strong>Restricted access to mineral lands defined as Non-mining zones</strong></td>
<td>27</td>
<td>○</td>
<td>No Provision</td>
</tr>
<tr>
<td><strong>Enhanced traditional administrative punitive actions</strong></td>
<td>28</td>
<td>○</td>
<td>No Provision</td>
</tr>
</tbody>
</table>

**Key:** ● = High; ○ = Moderate; ○ = None
compatibility are land access and compensation (items #’s 12 and 13; Table 5-8), environmental issues (item # 14; Table 5-8), fiscal regimes (item # 17; Table 5-8), royalty system (item # 18; Table 5-8) and administrative process and government’s role (items #’s 19, 20, and 21; Table 5-8). Essentially, the areas of high compatibility also represent the various items of the international best practice for attracting mineral investors that were illustrated in Table 5-3 and discussed in section 5-2. The 2006 Minerals and Mining law of Ghana is moderately compatible with enforcement mechanisms (item # 7, Table 5-8), environmental issues related to effective public participation (item # 15, Table 5-8) unconditional access to information (item 16, Table 5-8) and inefficient disbursement of gold mining dividends to local community development (item # 26, Table 5-8).

5.8 Discussion

Generally, the 2006 Minerals and Mining law was highly compatible with the LAMLM, which therefore suggests that the former was modeled after the latter. The LAMLM is regarded as an instrumental model to a successful regime for private investment attraction in mining (Tieherra, 2006). Hence, the high compatibility identified above indicates that the Ghanaian mining policy-makers carried out the mining law review with the principal aim to attract investors. This was further revealed when the Minerals and Mining law was assessed within the context of the sustainable mineral development model. The results revealed that the majority of the half of the twenty-eight items that were not strongly (moderately/none) compatible with the sustainable mineral development best practices showed no compatibility. A further analysis of the process of
drafting and passing the Minerals and Mining Act asserts that the attraction of private mineral investors was the principal aim of the review. The areas of moderate-weak compatibility are discussed in details below

### 5.8.1 Assessment of the Moderate Compatibility between Minerals and Mining Law of Ghana and the Sustainable Mineral Development Model for Mineral Investments

Although the phases of mining development from exploration through operations to closure cause significant environmental damage, the Environmental Assessment Regulation of 1999 requires companies to submit only pre-mining financial guarantees in the form of reclamation bonds. The financial guarantees serve as “insurance policy” that can be used against default for reclamation or rehabilitation of disturbed land by companies. There are potentials for the use of similar financial guarantees to address non-payments of mineral rights maintenance fees and non-compliance with the periodic environmental reporting requirements during mining operations instead of fines, warnings and cancellation of mineral right. In addition, the 21-day public comment period required during the mandatory EIA for mining projects is inadequate for citizens especially the immediate mining communities to learn the conduct of a mining operation that has the potential to affect them. In order to have effective citizen participations in the EIA process, the public comment period need to be increase to about 60 days.

Government revenue sources from the mining sector are corporate income tax, royalties, payroll taxes of local employees (Pay as you earn), reconstruction levy,
withholdings (capital gains and dividends), dividends from government equity participation, land and related rents and fees. The mining industry’s contribution to the total revenue collected from 1990 to 2009 was about 12.6 % (Table 5-9). Mining royalties, pay as you earn (PAYE) and the national reconstruction levy have significantly contributed to the national revenue, in addition, corporate income tax has been substantial since 2004 (Table 5-9). Revenues from government equity participation, land and related rents and fees are minor while contribution via the mandated withholdings is inconsistent due to non-payment (Akabzaa, 2009). Amongst these taxes, royalty has remain the most consistent source of government revenue due to its non-dependent on profitability of mining companies but rather on an assigned percentage of the quantity of gold produced or gross sale (Table 5-9). Profit dependant tax revenue such as corporate income tax fluctuates significantly therefore it negatively affects projected government revenue (Figure 5-3). The revenue from the mining sector is still insignificant due to the inherited fiscal and regulatory arrangement between the government and mineral investors. As outline above, royalties paid based on the total value of minerals won are challenged by non-uniform gold price on the markets and lack of a mandated national foreign exchange rate. Moreover, mining companies delayed or deferred payments of royalties to take advantage of provisions in the fiscal arrangement (Akabzaa, 2006). These factors affect government projected expenditures and planned utilization of the royalty payment.
Table 5-9: Contribution of mining taxes to Government revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>Corporate Income Tax</th>
<th>Royalties</th>
<th>Pay As You Earn (PAYE)</th>
<th>Reconstruction levy</th>
<th>Withholding</th>
<th>Total Mining taxes</th>
<th>Total IRS</th>
<th>% from Mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>282,594.16</td>
<td>189,343.60</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>471,937.76</td>
<td>5,281,806.80</td>
<td>8.94</td>
</tr>
<tr>
<td>1991</td>
<td>82,184.50</td>
<td>302,127.70</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>384,312.20</td>
<td>6,148,362.50</td>
<td>6.25</td>
</tr>
<tr>
<td>1992</td>
<td>455,051.88</td>
<td>454,580.40</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>909,632.28</td>
<td>7,473,153.10</td>
<td>12.17</td>
</tr>
<tr>
<td>1993</td>
<td>439,344.73</td>
<td>748,512.60</td>
<td>264,930.60</td>
<td>-</td>
<td>2,000.00</td>
<td>1,454,787.43</td>
<td>11,323,699.70</td>
<td>12.85</td>
</tr>
<tr>
<td>1994</td>
<td>721,408.20</td>
<td>1,278,368.90</td>
<td>48,080.20</td>
<td>-</td>
<td>2,047,857.30</td>
<td>16,659,594.10</td>
<td>12.29</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>2,039,297.30</td>
<td>2,091,192.60</td>
<td>795,176.30</td>
<td>3,000.00</td>
<td>27,551,320.10</td>
<td>4,928,666.20</td>
<td>7,473,153.10</td>
<td>12.17</td>
</tr>
<tr>
<td>1996</td>
<td>916,052.80</td>
<td>3,552,702.70</td>
<td>1,683,453.40</td>
<td>-</td>
<td>125,000.00</td>
<td>7,032,276.90</td>
<td>60,578,257.70</td>
<td>11.61</td>
</tr>
<tr>
<td>1997</td>
<td>986,879.60</td>
<td>3,459,495.00</td>
<td>2,502,202.30</td>
<td>-</td>
<td>83,700.00</td>
<td>7,032,276.90</td>
<td>60,578,257.70</td>
<td>11.93</td>
</tr>
<tr>
<td>1998</td>
<td>1,445,077.30</td>
<td>4,984,124.20</td>
<td>3,101,650.60</td>
<td>-</td>
<td>-</td>
<td>9,530,852.10</td>
<td>78,543,669.30</td>
<td>12.13</td>
</tr>
<tr>
<td>1999</td>
<td>3,111,710.80</td>
<td>4,862,041.90</td>
<td>2,783,926.00</td>
<td>-</td>
<td>-</td>
<td>10,757,678.70</td>
<td>90,166,375.80</td>
<td>11.93</td>
</tr>
<tr>
<td>2000</td>
<td>1,578,916.70</td>
<td>11,873,693.50</td>
<td>5,924,380.00</td>
<td>-</td>
<td>-</td>
<td>19,376,990.20</td>
<td>140,944,527.30</td>
<td>13.75</td>
</tr>
<tr>
<td>2001</td>
<td>2,481,289.30</td>
<td>12,735,838.60</td>
<td>7,611,167.80</td>
<td>425,146.80</td>
<td>-</td>
<td>23,253,442.50</td>
<td>195,016,275.10</td>
<td>11.92</td>
</tr>
<tr>
<td>2002</td>
<td>2,350,115.80</td>
<td>15,345,247.10</td>
<td>10,145,771.10</td>
<td>2,647,463.40</td>
<td>-</td>
<td>30,488,593.10</td>
<td>275,774,778.10</td>
<td>11.06</td>
</tr>
<tr>
<td>2003</td>
<td>6,813,770.20</td>
<td>19,438,757.90</td>
<td>14,104,945.00</td>
<td>1,678,588.30</td>
<td>-</td>
<td>42,036,064.10</td>
<td>382,407,838.90</td>
<td>10.99</td>
</tr>
<tr>
<td>2004</td>
<td>10,035,114.40</td>
<td>21,574,370.60</td>
<td>13,435,771.10</td>
<td>5,318,590.50</td>
<td>11,310,661.00</td>
<td>61,672,507.60</td>
<td>533,311,470.40</td>
<td>11.56</td>
</tr>
<tr>
<td>2005</td>
<td>26,988,964.00</td>
<td>23,595,190.30</td>
<td>15,437,125.80</td>
<td>1,951,627.90</td>
<td>13,490,703.00</td>
<td>81,463,614.00</td>
<td>620,056,505.60</td>
<td>13.14</td>
</tr>
<tr>
<td>2006</td>
<td>21,566,201.00</td>
<td>31,625,478.90</td>
<td>18,271,006.70</td>
<td>1,582,873.00</td>
<td>17,381,530.00</td>
<td>90,427,089.60</td>
<td>734,135,447.80</td>
<td>12.32</td>
</tr>
<tr>
<td>2007</td>
<td>47,415,690.00</td>
<td>40,882,042.00</td>
<td>34,587,597.00</td>
<td>21,208,062.00</td>
<td>144,093,391.00</td>
<td>195,016,275.10</td>
<td>140,944,527.30</td>
<td>13.75</td>
</tr>
<tr>
<td>2008</td>
<td>73,554,697.00</td>
<td>59,006,509.00</td>
<td>47,139,242.00</td>
<td>30,804,675.00</td>
<td>30,804,675.00</td>
<td>241,309,798.00</td>
<td>1,222,475,246.00</td>
<td>19.74</td>
</tr>
<tr>
<td>2009</td>
<td>124,680,880.00</td>
<td>90,415,902.00</td>
<td>103,061,985.00</td>
<td>36,288,407.00</td>
<td>36,288,407.00</td>
<td>390,655,581.00</td>
<td>1,790,557,800.00</td>
<td>21.82</td>
</tr>
</tbody>
</table>

Source: Modified from Broch and Owusu, 2011
Figure 5-3: Contributions of mining taxes to Government revenue. Data Source: Modified from Broch and Owusu, 2011
Furthermore, Ghana currently operates on a negotiable fixed royalty system for the lifetime of a mine, although the flexible royalty tax regime based on the global gold price was proved the best system. Catwood (2006) conducted an empirical study to compare the negotiable fixed royalty paid to government of Ghana for the year 1993 with the royalty if paid by the flexible royalty system. The results revealed that the flexible system generates more than twice the revenue of the current fixed system (Catwood, 2006). At the current “soaring” price of gold, such a flexible system would have boosted the government’s tax base. Currently, mining is by the mechanized and capital-intensive method of surface mining, which requires fewer employees compared to underground mining method. This has led to the fall of government revenue from PAYE taxes. Moreover, government’s revenue from PAYE taxes is reduced due to the exemptions and reduced tax rate on the income of expatriate employees in the mining contracts between mineral investors and government of Ghana (Akabzaa, 2009). Furthermore, regulatory amendments such as the reduction of the government’s mining equity dividends from 10-30% in the 1986 Minerals and Mining law to a fixed amount of 10% in the 2006 Minerals and Mining law reduces government’s equity participation revenue.

Royalties make about 90% of government revenue from the mining sector (Akabzaa, 2009) and the 2006 Mining and Mineral law requires a percentage of the royalty be use for community development. As evident in Figure 5-3, generally, royalty shows insignificant variation in percentage contribution to the total mining revenue relative to any other taxes. By the mining royalty distribution formula displayed in Figure
Figure 5-4: Disbursement of gold mining royalty revenue in Ghana. Source: Akabzaa, 2009
generally only 10% of the total payment is used to address community issues while 90% is transferred into the national revenue and support for governmental mining agencies (Figure 5-4). The government maintains 80% of the total revenue in its consolidated account and 20% in the mineral development fund, a fund meant for mitigation of negative impacts of mining within the communities and promotion of the development of the mining industry (Figure 5-4). The mineral development fund is shared equally between government institutions that support the mining sector such as the minerals commission and the office of the administrator of stool lands (OASL), (Figure 5-4). For its administrative purposes, the OASL retains 1% of the royalty and disburse the remaining 9% to the district assemblies, the stools and traditional authorities (Figure 5-4).

For direct local developments, the district assemblies receive 4.95% of the royalty in addition to rents from immovable properties for the repair of environmental damage caused by small-scale miners (Figure 5-4). Further, the stool and traditional rulers are required to use their share of the royalties that are 2.25% and 1.8% respectively for development projects in the mining communities. However, historical records on the use of the community development funds between 2000 and 2009 showed that substantial high proportion of funds were used to support mining agencies while other beneficiaries received near stable small portions (Figure 5-5). In addition, the government’s 90% of the royalty that goes into the national revenue is normally use on government projects that do not include the development of the host communities. Hence, the public has cited lack of basic infrastructures in these communities as evidences of the negative impacts of mining. At the community level, the royalties have not been utilized for their intended
Figure 5-5: Distribution of shares from mineral development fund
purposes. For example, district level administrators have used their receipt of royalty for recurrent expenditures and traditional authorities have used their shares for private projects such as renovations of their palaces and acquisition of new buildings (Akabzaa, 2006).

As illustrated above, it is evident that the current low percentage royalties that mining companies pay have been ineffectively managed. The government needs to adopt efficient mechanism for the distribution and reinvestment of mineral royalty. A hypothecated tax system such as the Alberta Heritage Fund and the Alaska Permanent fund have utilized specific percentage of their oil revenues for the betterment of their citizens (Warrack and Keddie; 2001). In this tax system, royalties are targeted towards specific objectives rather than been paid into the general revenue, with accounting methods in place to track expenditures (Waye et al., 2009). The tracking system will allow the direct contribution of the royalty to specific goals such as sustainable development and eliminate the challenges of accountability and transparency associated with current royalty disbursement in Ghana (Waye et al., 2009; Akabzaa, 2009).

Generally, mineral wealth are transformed through consumption and investment; the former goes into general revenue and the latter is a form of dividend in terms of economic diversifications, social development and environmental protection (Waye et al; 2009). The government of Ghana’s royalty disbursement at the community level has elements of investment to offset environmental damage (Figure 5-4) but with no development objectives. The local mining host communities lack basic needs such as
school, roads, hospitals and other necessities of live. Therefore, in sustainability terms, the government of Ghana has to increase the royalty percentage that can adequately fund long-term community projects.

5.8.2 Assessment of the Incompatibility between Minerals and Mining Law of Ghana and the Sustainable Mineral Development Model for Mineral Investment

Further, the 2006 Minerals and Mining law of Ghana is silent on security of investments (item # 8, Table 5-8), co-ownership of the mineral concessions with local communities (item #’s 22-25, Table 5-8), restricted access to areas defined as non-mining zones (item # 27, Table 5-8) and enhanced punitive actions (item # 28, Table 5-8). Currently, the security of mineral investments aimed to diversify investment risks is allowed through the mortgage and/or transfer of mineral rights. Moreover, public participation in mineral permitting should not be limited to inputs during the EIA process of the mining project but to the other phases of mineral development. For example, there are potentials for citizens to challenge the return of reclamation bonds to mineral investors in courts due to inappropriate mine closures that can affect public health, and social and environmental needs of the mining host communities. Another mineral investors incentive that the law provides is the protection of the records/reports on mineral explorations and geological information (item # 5, Table 5-4). At the request of a third party (e.g. local mining communities), these reports can be made available for inspection but copies of reports can only be obtained at a prescribed fee and the prior
written consent of the mineral rights holder. It is believed that such reports need to be confidential for a business case due to its sensitivity when in the hands of other mineral development competitors. Hence, the reports are therefore not readily available to local communities and the public who may have legitimate concerns. However, the provisions can promote transparency and public access to information if all the mining and environmental permitting documents are made public on a government sponsored/agency website.

The current mining law allows access to forest reserve for mining activities and the sought of the prior informed consent of the owner of any other land that would be disturbed by mining activities. However, there is no provision on a required local community proximity to massive mining operations and mining waste disposal facilities. In addition, the current sustainability concerns about natural resource extraction and areas of ecological sensitivity were not incorporated in the current law. The law lacks provisions that define certain areas of ecological values such as forest reserves as non-mining zones. Furthermore, it was expected that there would be clear-cut provisions for fines and penalties for damages to natural resources due to spillages and other mining related incidents and accidents that are common with activities of corporate mining firms. Moreover, the Ghana Minerals and Mining law need to incorporate mechanism to offsets any pollution that resulted from mining operations in addition to monetary fines. For example, mining companies may be required to provide a number of boreholes to water deprived communities based on the extent of their contamination of an environmental media. Other weaknesses in the law include the conflictual mandate of the minerals
commission and the lack of verification of claims in the EIS of mining companies. The minerals commission permits and regulates mining companies but mandated to support the growth of mineral projects. In addition, GEPA rely solely on findings in the EIS of project proponents in mining permitting process despite the potential to hire external contractors to verify submitted EIS.

5.8.3 Assessment of the Process of Drafting and Passing of the 2006 Minerals and Mining Act

In summary, the Minerals and Mining Act weakens communities but strengthens investors despite the significant public participation in its drafting process. The reform process allowed most stakeholders to articulate their different position but the final document substantially maintained the government backed position of mining companies at the expense of the perspectives of local communities and civil society. According to Akabzaa (2009), the Ghana National Coalition on Mining (NCOM) that represented community and civil society suggested the following (that are relevant to this study) in their proposal to parliament regarding the amendment of the 1986 Minerals and Mining Act of Ghana:

1. Participation of chiefs and people affected by mining in the granting of mining licenses and leases

2. Companies to build the capacity of mining communities during the lifespan of the mining operations
3. Clear guidelines for the utilization of the share of royalties received by district assemblies from large-scale mining activities to prevent misuse of such receipts

4. Compensation mechanism for land that has been appropriated for mining activities, including potential use value of fallow lands and net present worth of farm crops over the anticipated life of such crops

5. Royalties that mining companies pay should not be less than 5 per cent (against industry suggestions that it should be not less than 1 per cent and not more than 3 per cent)

6. Mandatory requirements for mining leaseholders to make their environmental audit reports accessible to the public to enhance public knowledge of the environmental and social obligations in their operations

Interestingly, only one of the proposals by NCOM (4. compensation mechanism for land designated for mining and related issues) was incorporated in the final document (item #9, Table 5-6; item #’s 12 and 13, Table 5-8). These proposals were initially incorporated in the first draft of the Minerals and Mining Law. The draft was heavily criticized by pro-mining bodies (the mining industry and governmental agencies), which resulted in further consultations with mining stakeholders behind closed doors but with limited participation of NCOM. Hence, the final document that was passed into the Minerals and Mining Act incorporated few of the demands of the NCOM (Akabzaa, 2009). The consultation of local communities and civil society demonstrated significant improvement in extractive sector governance that conforms to the growing global trend of public participation in
policy formulation. However, the non-incorporation of the perspectives of local communities and civic society suggest that the public participation approach adopted in the drafting and passing of the Minerals and Mining was more a public relation rhetoric. This assertion is in accordance with the findings of Bickerstaff et al., 2002; Haight and Ginger, 2000 and Aronson, 1993 who revealed that even though public participation is aim to allow citizens to voice their concerns in policy-making, but often their concerns are not represented fully and fairly in the decision-making and action. Such poorly managed public participation process results in flaw decisions that can increase public dissatisfaction rather than decrease it (Ananda and Herath, 2003). It is therefore not surprisingly that the civic society and local communities are continuously calling for the review of the 2006 Minerals and Mining Law. This mining stakeholder claimed that the public-participation process made few gains like the compensation principle but does not adequately protect the sovereignty and mining rights of Ghana and mining communities respectively (Agyenkwa, 2010). In response to this pressure, the government has recently commissioned a panel to review the Minerals and Mining Act, 2006 (Act 703). As a result, the Center of Public Interest Law (CEPIL), a right based non-governmental organization assisted by Wassa Association of Communities Affected by Mining (WACAM) and financially supported by the Open Society Initiative for West Africa has organized separate three-day encounter with more than 120 representatives of the communities affected by mining. The main aim of these meetings is to gather input for submission to the panel reviewing the current Minerals and Mining Act (Asiamah, 2012). There is a general call by the local mining communities for the revised law to require
local mining communities input during mining lease application by firms, prescribed sanctions such as the suspension of mining leases of corporations when their activities pollute a river and provisions to outlaw mining in forest reserves and arable lands.

5.9 Conclusion

The Government of Ghana carried out structural adjustment program in the 1980s to revamp the mineral industry. Principally, the government enacted an investor friendly Minerals and Mining law in 1986 that led to an unprecedented growth in the mineral sector and significant increase in mining revenue. Mineral-rich nations of Latin America carried out similar structural adjustment and they have continuously improved upon their mining laws by strategies collectively referred to as the LAMLM. The success of LAMLM in attracting mineral investors pressured the Government of Ghana to review its 1986 Mining and Mineral law to remain competitive in the mineral industry. In addition, the demands of local mining communities and civic society for transparency, accountability and involvement in allocation of mineral concessions and associated operations that are of concern to their livelihood necessitated the review. Ghana adopted a new Minerals and Mining Law in 2006.

The study presented here used a case study of 2006 Minerals and Mining Law of Ghana to highlight the content of mining law of mineral-rich developing countries to attract mineral investors and mineral revenue management. In addition, it identified how public (local mining communities and civic society) participation in the mineral policy
formulation does not necessary lead to the full and fair incorporation of their concerns in
decision-making and action.

In this study, Ghana’s mining law was challenged by the international competitive
pressure to attract mineral investors and the cognizant of environmental protection and
community interests associated with mineral development. As a result, the 2006 Minerals
and Mining law was designed in accordance with the provisions of LAMLM, the
international best practice for mineral investment. However, the provisions of the law
significantly lack compatibility with the sustainable mineral development model, which
essentially addresses environmental protection and rights of citizens in mineral
development and reinvestment of mineral revenue.

This study recommends that the Government should give local communities and
civic society greater role in mineral policy governance. This role should go beyond
rhetoric public participation process to active involvement in the decision-making
process, and not merely the implementation of top down decisions. Furthermore, the
government should engage sincerely with the public on the global dynamics of attracting
mineral investors within the framework of sustainable mineral development for better
understanding of the optimal requirements for an effective mineral investment policy. In
addition, the Government needs to adopt efficient mechanism for the collection and
reinvestment of mineral royalty to balance the negative impacts with the benefits of
mineral development. The flexible royalty system can increase government revenue
about two and half folds relative to the current negotiable fixed royalty system that the
Government of Ghana operates. Finally, the government must ensure that local
communities share of mineral royalties are transformed through investment in the form of long-term dividends such as economic diversifications, social development and environmental protection with accounting methods in place to track expenditures. Local mining communities and civic society can contribute towards sustainable mineral development by heightening their negative experiences in mineral policy formulation to gain political powers. Politician seeking office may then commit towards effective public participation and decision-making processes in their political manifestoes and promises during political campaigns.

Nevertheless, this study is subject to a few limitations due to the subjective nature of the deriving the constituents of the LAMLM and the sustainable mineral development models.
References


Ayisi, MK. (2009). Ghana’s new mining law: an evaluation of its competitiveness. A MSc. thesis submitted to the Faculty of Law, University of Calgary


CHAPTER 6
PRIVATE RESPONSES TO MINING: A CASE STUDY OF NEWMONT GHANA GOLD LIMITED FOUNDATION AND SUSTAINABLE GOLD MINING IN GHANA

Abstract

This study analyzed Corporate Social Responsibility and its effectiveness on the ground to fulfill real community needs by focus on Newmont Ahafo Development Foundation’s (NADeF) activities in the Ahafo local community of Ghana. First, the relevance of CSR projects and programs to a mining company and its host community was illustrated. Second, the contributions of CSR projects and programs to the sustainable development of the host community were investigated through the case study of community development projects of the Ahafo Social Responsibility Forum (ASRF). The ASRF is a 53-member consultative and collaborative forum of representatives of Newmont Ghana Gold Limited (NGGL), a subsidiary of the global gold mining giants Newmont Mining Corporation and local stakeholders who assessed the most meaningful CSR projects and programs that the NADeF foundation need to implement in the Ahafo mine local community. The contributions of the NADeF projects to sustainable development of the Ahafo mine local community was evaluated based on the seven questions to sustainability (7QS), a sustainable development measurement framework. A 7QS
assessment template developed from the 7QS was used to guide the sustainability assessment of the information obtained from the content analysis of 2009 and 2010 annual reports of the foundation and other relevant documents available on the foundation’s website. The results showed that the NADeF projects fulfilled real community needs. However, the foundation needs to implement its natural resource and economic empowerment projects and programs for the sustainable development of the Ahafo mine local community. A similar program in a NGGL intended mining project in the Akyem area could significantly contribute to the sustainable development of the host community. This can be achieved if the Akyem Development Foundation (ADF) programs and projects would encompass all the components of sustainable development and the requirements for local communities to balance all these components of sustainable development in their development needs.
6.1 Introduction

The extraction of minerals and sustainable development are incompatible due to the finite nature of mineral resources (Bartlett, 2006; Whitmore, 2006; Cowell et al., 1999, Young, 1992). Historically, gold mining has been a significant revenue contributor to the economy of mineral-rich nations. However, it is associated with negative impacts on the natural environment, livelihoods, traditions and culture and social structure of the immediate local communities (Ali, 2006; Kumah, 2006; Corte and Coulston, 1998; Muezzinoglu, 2003; Hancock, 1993). Even though such negative impacts of mining are predominantly at the local level, they have now become issues of global concern that support the argument that there is no net benefit from mining (Ali, 2006; Whitmore, 2006). As a result, mineral-rich nations have implemented sets of requirements through legislations, policies and statutory requirements that new and existing mining projects have to adhere to in order to safeguard public health and well-being (Mudd, 2007). Beyond these legal requirements, corporate mining firms face oppositions from local communities and other stakeholders that result in disruption of operations and cancellation of proposed projects (Els, 2011). Such grievances can generate problems with regulatory authorities that could lead to loss of investors confidence in the viability of a mine project. Further, a problem at one mine site affects a company’s overall reputation that could lower its share price and ability to attract finances for new projects in other parts of the World (Business for Social Responsibility, 2003). In order to address these concerns, the gold-mining industry has moved towards a more proactive...
responsible mining approach by adopting the recommendations in the “Minerals, Mining and Sustainable Development” report (IIED and WBCSD, 2002), a global mining initiative. Moreover, the sustainability performances of mining firms have become an important component of viable mining projects and currently reported alongside financial performance. Generally, sustainability performance reports are based on companies standards or external guidelines such as the recently developed Global Reporting Initiative (GRI, 2006). Furthermore, mining companies are finding ways to address conflictual projects and social expectation in order to gain the social license to operate and avoid costly local opposition that can lead to work stoppage, and delays or cancellation of proposed projects. As such, most companies are making voluntary contributions to society as prescribed by moral and philanthropic values rather than by legal requirements by the name of Corporate Social Responsibility (CSR), a term commonly associated with sustainable development (Yakovleva, 2005). The concept of CSR suggests that business has a social responsibility to contribute to social progress beyond economic transactions. However, such contributions to social progress should not substitute a government’s development responsibilities to the nation. Mining companies are for business but obliged by sustainability responsibility to ensure that their presence does not hinder social, environmental, and economic flourishing. Nevertheless, corporate mining firms are not expected to correct the development failures of governments.

Gold mining companies in Ghana have voluntarily adopted global, national, regional and local development initiatives to address the needs of their communities in
and around their areas of operations. The development priorities of these mining host communities are known through consultations and partnerships with community-level stakeholders, and contracted national and international developmental non-governmental organizations such as Opportunities Industrialization Center International (OICI) and the U.S. Agency for International Development (USAID). These strategies are repositioning the mining industry as an agent for Ghana’s development. The development activities of Newmont Ghana Gold Limited (NGGL) in the Ahafo Mine Local Community (AMLC) are examples of the numerous contributions of mining companies to enhance the well-being of their immediate communities and beyond. However, according to critics, such projects are not “reflections” of the community needs but selective projects that the company is “comfortable” in implementing. This chapter evaluates these claims by examining the effectiveness of the development activities of NGGL in AMLC to fulfill real community needs. Furthermore, the governments of mineral-rich nation are responsible for the reinvestment of mineral development revenues for sustainable development of a nation; however, such an analysis falls beyond the scope of this study.

6.2 Literature Review

6.2.1 Integrate Community Relations with Corporate Policy

Labone (1999) recognized that mineral exploitation must encompass social dimensions and not solely technical and economic points of views. The author showed
that socially responsible corporate policies include the decentralization of decision-making to the field level, reaching out to stakeholders and shareholders, and supporting governments that will provide official development assistance, good governance and building broad partnerships to reduce social exposures. Moreover, Kemp et al. (2006) illustrated how mining companies in their quest for sustainability have developed and implemented a management system approach to community relations. This entailed the industry’s recognition of the importance of effective partnership with community and the need to take actions to prevent potential threats to its social license to operate. According to the authors, such an approach is a community, value-driven approach rather than conventional management systems approaches to dealing with mining communities concerns. This approach may be implemented when the mining industry is ready to make a substantial investment in organizational capacity building, revisit their external stakeholder engagement procedures and promote external involvement in planning and performance review processes (Kemp et al., 2006).

6.2.2 Success of Community Consultation Processes

Davis (1998) acknowledged that the success of any mining project depends not only on technical and economic mitigation of negative impacts but on community concerns as well. He argued that the mining industry must establish a positive, strong and transparent relationship with local communities that will based not only on moral grounds but also as a good business case. The author illustrated this by the case study of
the Western Mining Corporation (WMC) Tampakan Copper Project in the Philippines. WMC established a foundation to benefit everyone in the community with funds from the Land Access Compensational Agreement and the company’s donations (Davis, 1998). The board of each foundation consisted of representatives of the company, the community (elected through the tribal council) and the government. Each community was responsible for the management and maintenance of its own development programs while WMC’s community relations team provided them skills and training in needs assessment, project management and technical guidance (Davis, 1998). WMC, therefore, developed its capacity to deal with the social-cultural concerns of the indigenous people and gained the “social license to operate”. Similarly, an analysis of aboriginal participation in mine development by Fiddler (2009) showed how more inclusive social and environmental development models would support sustainable mineral development. By the case study of Galore Creek Project in northwestern British Columbia, Canada, the author illustrated how negotiated agreements signed between mining proponents (Nova Gold) and aboriginal groups made a positive contribution to a successful mineral development. The project proponents in their quest to gain the “social license” to operate engaged the aboriginal groups in the design, operation and closure of the mine before the start of the mining project. This early engagement allowed the aboriginal groups to reconcile contrasting perspectives on mineral development and converged on the terms cited in a binding negotiated agreement (NAs) with the project proponents. Beyond that, through the NAs, the aboriginal groups enhanced their roles granted to them by regulatory
authorities and incorporated outstanding concerns beyond those set out in the EIA (Fiddler, 2009).

Gifford and Kestler (2008) investigated a Newmont Mining Corporation’s (Newmont) community benefit program aimed at gaining local legitimacy in communities around its mining operations in Peru. According to the authors, local legitimacy consists of three components. First, the analysis of development needs and concerns by firms and community partners. The second component is the planning and investment in developments to enhance the social fabric of communities. The last component is the planning and investment in physical infrastructure needs such as water and sanitation systems, schools and hospitals. The study concluded that it would be increasingly necessary for multi-national enterprises (MNEs) like Newmont to add local sustainable benefits into their “strategic mix” in order to gain the social license and legitimacy to operate in poorer communities (Gifford and Kestler, 2008). Harvey and Brereton (2007) showed that most mining companies in Australia have moved away from the traditional ways of community engagement such as company-only plan resettlement of communities that live in a newly acquired mining concession. Recently, the majority of companies have made public their commitments to engage on a much more informed basis with affected communities and other stakeholders on matters of mutual concern. This has been through varieties of formal and informal consultative processes at the local level. Harvey and Brereton (2007) concluded that the primary business drivers for this enhanced attention to community engagement are due to the desire to effectively manage
social risks and achieve a competitive advantage through self-regulation, community and employee endorsement, and reduced financial volatility. Holcombe (2006) investigated the developments of two indigenous communities in remote areas of Australia because of their engagement with a mining company. The study focused on the interactiveness and relations features of the mining company’s engagements strategy with the indigenous communities. The study recommends that communities be engaged in determining their objective sets of needs and interests under the terms of the developments. Such an engagement serves to capture the interest and capabilities of indigenous communities in decision-making (Holcombe, 2006) to enable mining firms operate in harmony with their host communities.

6.2.3 Outcomes of Ineffective Community Consultation Processes

Trebeck’s (2007) Australian case study revealed how indigenous communities forced their demands into corporate decision-making after non-implementation of a prior agreement reached with multinational miner Rio Tinto. The study revealed that actions by mining companies in recognizing and responding to community expectations become a matter of prudent strategy and enlightened self-interest. Quiroga (2002) investigated the reasons why mining communities are associated with environmental damage and economic impoverishment despite the opportunities for human development in Bolivia’s mining sector. The study concluded that, the implementation of alternative sustainable livelihoods programs by the government (central and local) and the private sector in
consultations with the local mining communities with non-profit organizations acting as facilitators would address the social inequities in Bolivia’s mining communities (Quiroga, 2002).

6.2.4 Sustainability Assessment of CSR Programs at the Community level

Currently, there is a need to look at the net effect of a CSR program within the economic, social and environmental dimensions in order to measure its potential benefits to the future generation due to the global awareness of sustainable development. Bury (2004) studied the contributions of transnational gold-mining operations to the transformations of rural livelihoods in the Cajamarca region of Peru. Based on a case study, the paper evaluated how Newmont Mining Corporation’s Minera Yanacocha (MYSA) mining operations altered access to important resources for livelihood production and development efforts. The evaluation looked at the impact of Newmont’s mining on the following resources: the produce capital (infrastructure development), human capital (human capabilities such as skills, education, knowledge and health), natural capital (water, land, forests and soils) and social capital (stocks of mutual trust or connections between people that provide a flow of resources in pursuit of economic and political activities). Bury (2004) concluded that mining has improved access to produce and human capitals in the past decade, but also altered the infrastructure of the region through the construction or improvement of roads, electrical facilities and buildings. Moreover, mining has led to increased financial assets as households have sold land to
the mine, sold more livestock and agricultural products, accessed and converted credit into productive livelihood assets, education and training in the production of agriculture and animal husbandry (Bury, 2004). These financial empowerments have resulted in the maintenance of family health, formal education and adult technical training, health services, preventative health care and sanitation in the region. However, access to natural and social capital resources have declined due to the mining impacts on the land and water resources of the region. The negative social impacts of the project include non-transparent hiring practices and land purchasing strategies that has resulted in distrusts and conflicts among households.

Despite the negative impacts of mining activities outlined above, global mining companies are increasingly contributing to the developments of their host communities. However, there are local communities who feel that the current CSR programs of gold-mining companies are incapable of alleviating rural hardship, and that mining companies are not living up to their expectations (Garvin et al, 2009; Hilson, 2006). The next section looks at the CSR practice in the mining sector of Ghana within the context of this debate.

6.3 Sustainability Strategies of Gold mining Companies in Ghana

Unlike other industries that have a high degree of mobility, gold-mining companies are bound to operate in areas where the mineral resources are located. The
major gold mineralization of Ghana are in the western section of the country where numerous companies are situated (Figure 6-1). During the mining licensing processes, there are requirements for the concerns of the mining host communities to be integrated into the decision making process especially during environmental permitting. Generally, after the acceptance of a draft environmental impact statement (EIS) by a cross-sectoral technical committee, a copy would be sent to the appropriate local authorities to be made public while the mining company is issue with a provisional environmental permit. The Ghana Environmental Protection Agency (GEPA), through newspaper advertisements and postings at appropriate public places, gives a 21-day notice for public input to the EIS report. If a strong public concern over the proposed undertaking was expressed, the GEPA appoints a panel of three to five persons to hold public hearings after which a decision would be made to either approve or reject the provisional environmental permit (EP).

It is noteworthy that, when the applicant is not satisfied with unfavorable decisions, s/he has the right of appeal to the minister responsible for the environment that appoints a board to hear the appeal and make a final decision on the proposed undertaking. However, there is no such provision for the local community to express their dissatisfaction about an approved EIS. Further, it is rare to hear the cancellation of a provisional EP of a proposed mining project in Ghana due to local community concerns. Where a mining lease encompasses a community settlement, the law requires gold-mining companies to financially compensate the local communities who will be affected
by the mine development through the loss of land, housing and livelihoods. There have been numerous cases in the past about mining companies providing inadequate compensation to local people regarding land access, particularly about the lack of recognition of the deprivation of the use of the land. For example, there have been several tensions over crop and relocation compensation as well as the quality of the service, housing and infrastructure in resettlement villages (Aubynn, 1997; Akabzaa, 2000). Other community-company grievance that relates to land access to accommodate large-scale mining includes the deprivation of the use of the land for customary practices such as the right of the members to collect firewood, mushrooms, medicinal plants and hunt game (Business for Social Responsibility, 2003). The law of Ghana does not require mining companies to compensate for these losses. The new 2006 Minerals and Mining law of Ghana provides for the compensation of landowners or any lawful occupier of surface rights or property who may be disturbed by the activities of the holder of a mineral right. In addition, it provides a number of guiding principles that may be used to determine the amount of compensation to pay.

Generally, large-scale gold mining companies in Ghana demonstrate their sustainability commitments through:

- Infrastructure improvements: for example, building access roads, community buildings and schools
• Community health initiatives: offering health services to employees and their families, upgrading community hospitals and health centers

• Community foundations: a fund generated by the company that is used for social investment purposes and jobs for local industries

• Supporting small local businesses: preferential procurement policies for local suppliers

• Sustainable livelihood projects: reduce the community’s economic dependence on the mine, and develop alternative and sustainable employment opportunities for stakeholder communities

• Micro-credit finance schemes: loans that could be use to launch new enterprises, create jobs, and help economies to flourish. Such a credit system allows communities to invest based on their priorities or may be targeted to women, the most disadvantaged group in communities (Jenkins and Obara, 2006)

• Socially responsible programs: these are financial and resource contributions such as the payment of the salary of the national soccer coach, winning packages for the soccer team in Ghana by Goldfields Ghana Limited (Quandzie, 2011), cash and other awards by NGGL for national environmental competitions by schoolchildren and similar programs

However, critics termed these developmental initiatives as “green wash” or projection of a caring image without significant change to socially or environmentally
business practices (Hilson, 2006; Nyame, 2002). Mining communities in Ghana will embark on actions that will disrupt and even halt operations at the mines to express their dissatisfaction about the operations of a mine (Ghana news agency, 2005). For instance, in 2005, the youth of Prestea besieged the premises of Bogoso Gold Limited (BGL), a subsidiary of Golden Star Resources of Canada and used banners and megaphones to halt its operations. This was carried out to register their displeasure about the company’s blasting activities, which they claimed had caused extensive damages to their properties as well as serious health hazards (Ghana news agency, 2005). The potential of CSR programs to address the development needs of local communities is undoubtful; however, when the programs do not incorporate community concerns and expectations it can lead to conflicts between the local community members and mines. Nevertheless, the gold-mining companies in consultation with representatives of community-level groups can identify and implement workable and effective projects within the mining firm’s capabilities. Historically, the major challenge of such a consultative process is the choice of the community representatives. For example, 270 farmers and others community members who would be affected by the Newmont Akyem Project accused NGGL of setting up an “illegal” crop rate compensation committee. The farmers alleged that, the committee was monetary induced, promised jobs and contract awards in the form of bribes to impose the inadequate NGGL compensation rate on the poor farmers (Ghana news agency, 2009).
Mining companies operating in Ghana have been criticized for not taking into account the views of project-affected communities during the design and implementation of CSR programs and projects, and pursued CSR projects of their choice (Hilson and Banchiragh, 2008). According to Hilson (2006), mining giants in Ghana such as NGGL generally make their own decisions and finance community development programs of their choice. Nyame (2002) also questioned the reasons why large-scale mining companies in Ghana are persistent in promoting agrarian-based, livestock activities such as pig rearing, and snail cultivation activities, which have had only little economic impact. In addition, most of the rural folks are more interested in acquiring skills in other areas such as carpentry and masonry other than farming (Nyame, 2002). Moreover, NGGL and other mining giants in Ghana are mimicking sustainable livelihood programs of each other although mining host communities have different compositions (belief, value, demographic characteristics, etc.) and microclimates (Hilson, 2006).

Generally, Ghanaian mining corporations have adopted public forums or similar forms of a public hearing process to seek community input to the design of the CSR programs. This method of gathering information is limited by the tremendous power differentials in negotiation capabilities between the actors (mining companies and local communities) and non-existence of any set of enforceable rules as a way of determining community sustainability preferences. Even though CSR is a voluntary but necessary program for a successful mine operations, the approved programs are not documented in any contractual agreement. Therefore, prior agreed CSR programs such as a job offer for the youth from the local communities, provision of potable water, noise hazard and
vibration hazard management that were not enforceable have led to significant grievances in Ghana’s mining communities. Moreover, it must be realized that most of the development challenges that mining communities are facing are the responsibilities of the government. The local communities lack multiple essential services that corporations are solely unable to solve through their CSR goals commitments. As such, corporations do not have jump in when governments have failed although there is a good business case for such voluntary development projects. Corporations operate for profits although they are obligated to ensure that social, environmental, and economic flourishing occurs despite their presence in a community. Hence, projects that mining companies will commit to must address all the essential elements of sustainable development. The capability of CSR programs to effectively address the sustainable development of mining host communities is the objective of the conceptual framework of this study. The responsibilities of the state in supporting the well-being, quality of life, and sustainability to the communities vis-à-vis the CSR practices of the mining companies are beyond the scope of this work. Further, nearly all previous researches related to CSR programs and projects have focused on its mechanisms and operations but not on the measure of its effectiveness. To contribute to the further understanding of CSR programs, this study expands the scope of work to the measure the effectiveness of mining corporations CSR programs and projects on the ground to fulfill real community needs. The Seven Questions to Sustainability (7QS) approach has been proposed and adopted as the sustainability criteria for measuring the effectiveness CSR program within the gold-mining host community.
6.4 Seven Questions to Sustainability (7QS) and Conceptual Model

The North American Work Group of Mining, Minerals and Sustainable Development (MMSD) developed the 7QS for assessing how a mining/mineral project or operation can contribute to sustainability (Task 2 work group, 2002). The 7QS assessment template consists of seven key themes (Figure 6-2) about which questions will be posed as a method of assessing a mining/mineral project’s and/or operations net long-term positive or negative contributions to sustainability (Hodge, 2004; Task 2-work group, 2002). Answers to the questions will then be assigned to each question and the components of sustainability objectives determined. For each of the determined objectives, its themes and specific sub-themes of measurements or metric will be identified along the outline of Table 6-1. However, the level of detail of such a determination will be dependent on both the phase of the project/operation life cycle that is been considered and the site-specific conditions (Task 2-work group, 2002). This study employs the 7QS to assess the contributions of a mining company's development activities to the sustainable development of its host communities. In this study, sustainability is defined as any corporate mining development program that involves the transfer of a company’s resource for the production of long-term positive social goods and services through a cooperation involving the company, local governments and civil-society organizations.
Figure 6-2: The seven questions to sustainability (7QS). Source: Hodge, 2004; Task 2 work group, 2002
Table 6-1: Themes and sub-themes of the seven questions (7QS) to sustainability

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Engagement: Are processes of engagement committed to, designed and implemented that: • ensure all affected communities of interest (including vulnerable or disadvantaged sub-populations by reason of, for example, minority status, gender, ethnicity or economic status) have the opportunity to participate in the decisions that influence their own future; and • are understood, agreed upon by implicated communities of interest and are consistent with the legal, institutional and cultural characteristics of the community and country where the project is located?</td>
<td>1.1 Engagement processes 1.2 Dispute resolution mechanism 1.3 Reporting and verification 1.4 Adequate resources 1.5 Informed and voluntary consent</td>
</tr>
<tr>
<td>2. People: Will the project/operation lead directly or indirectly to maintenance of people’s well-being (preferably an improvement): • during the life of the project or operation? • in post-closure?</td>
<td>2.1 Community organizational capacity 2.2 Social/cultural integrity 2.3 Worker and population health 2.4 Availability of basic infrastructure 2.5 Direct, indirect and induced effects 2.6 Full social/cultural costs, benefits and risks 2.7 Responsibilities and sureties 2.8 Distribution of costs, benefits and risks 2.9 Social/cultural stress and restoration</td>
</tr>
<tr>
<td>3. Environment: Will the project/operation lead directly or indirectly, to the maintenance or strengthening of the integrity of biophysical systems so that they can continue in the post-closure to provide the needed support for the well-being of people and other life forms?</td>
<td>3.1 Ecosystem function, resilience and self-organizing capacity 3.2 Ecological entitlement 3.3 Full ecosystem costs, benefits and risks 3.4 Responsibilities and sureties 3.5 Environmental stress and action to ensure ecosystem integrity</td>
</tr>
<tr>
<td>4. Economy: Is the financial health of the project/operation assured and will the project or operation contribute (through planning, evaluation, decision-making and action) to the long-term viability of the local and regional economy in ways that will help ensure sufficiency for all and provide specific opportunities for the less advantaged?</td>
<td>4.1 Project or operation economics 4.2 Operational efficiencies 4.3 Economic contributions 4.4 Community/regional economies 4.5 Government and broader society economies</td>
</tr>
<tr>
<td>5. Traditional and non-market activities: Will the project/operation contribute to the long-term viability of traditional and non-market activities in the implicated community and region?</td>
<td>5.1 Activity/use levels 5.2 Traditional/cultural attributes</td>
</tr>
<tr>
<td>6. Institutional arrangements and governance: Are the institutional arrangements and systems of governance in place to provide a reasonable degree of confidence that the capacity to address project or operation consequences will continue to exist through the full life cycle, including post-closure?</td>
<td>6.1 Efficiency and effectiveness in the mix of legislated rules, voluntary programs, market incentives and unspoken cultural norms 6.2 Capacity to address operational consequences 6.3 Bridging to post-closure conditions 6.4 Overall confidence that commitments made will be fulfilled</td>
</tr>
<tr>
<td>7. Synthesis and continuous learning: Has an overall evaluation been made and is a system in place for periodic evaluation based on: • consideration of all reasonable alternative configurations and designs at the project level (including the no-go option in the initial evaluation); • consideration of all reasonable alternatives at the overarching strategic level for supplying the commodity and the services it provides for meeting society’s needs; • a synthesis of all the factors raised in this list of questions, leading to an overall judgment that the contribution to people and ecosystems will be net positive over the long term?</td>
<td>7.1 Project level alternatives 7.2 Strategic level alternatives 7.3 Overall synthesis 7.4 Continuous learning and improvement</td>
</tr>
</tbody>
</table>

Source: Hodge, 2004; Task 2- work group, 2002
Based on the 7QS criteria and previous discussions, the conceptual framework developed for this study is as presented in Figure 6-3. This focuses on CSR practices of NGGL in the Asutifi district of Ghana. The CSR projects/programs of NADeF when analyzed by the 7QS template would reveal its current and long-term contributions to the sustainable development of the mining host community. As an example, the foundations project would be synthesized along the sets of questions in the seven themes of the 7QS. This is to benchmark the current contribution of the foundations to the sustainability of the Ahafo mine community and most importantly its long-term positive impacts beyond the operations of the mine.

6.5 Newmont Ghana Gold Limited (NGGL) Projects

Newmont Ghana Gold Limited (NGGL) is the newly established multinational gold-mining company with surface mine concessions in the Akyem area in the Birim North district of the Eastern region and the Ahafo area in the Asutifi-Tano North district in the Brong Ahafo Region of Ghana, respectively. The Akyem mining project has been subjected to a thorough environmental impact study, public consultation and independent review processes for the past years (Newmont Africa operation, 2011). The Akyem project was approved by the Newmont Mining Corporation board of directors in March 2011 and production is expected by the end of 2013 (Akyem project approved, 2011).
Figure 6-3: The analytical framework of the study
6.5.1 Background of Ahafo Project

The Ahafo project covers an area of over 5000km² in two administrative districts (Asutifi and Tano North) of the Brong Ahafo Region, a tropical, cocoa growing region of mid-western Ghana (Guide to land acquisition and compensation for exploration activities, 2005; Newmont supporting local economic growth in Ghana, 2009). The Ahafo mine consists of two phases: first, is the development of four mining areas, and the construction and operation of related mine facilities (The Ahafo South Phase in the Asutifi district). The second phase is the potential development of six additional mining areas (Ahafo North Phase in the Tano North district) which is currently being evaluated (Newmont supporting local economic growth in Ghana, 2009). The South Phase Lease area extends from the southern boundary of the Amama Shelterbelt Forest Reserve (Figure 6-4) southwesterly to the known extent of mineralization roughly described as being a line from Hwidiem to the western edge of the Goa Shelterbelt Forest Reserve (Newmont’s Ahafo south disclosure, 2005). The North Phase Lease Area is that portion of the mineralized zone that extends from the northern boundary of the Amama Shelterbelt and Bosumkese Forest reserves northeasterly to the known extent of the Ahafo mineralized zone (Figure 6-4). The North Phase Lease Area is separate from the South Phase Lease Area by these forest reserves (Newmont Ahafo south disclosure, 2005). The Ahafo North was reserved for future development but currently NGGL is investigating several alternatives to this project, including possible underground gold mining. For the Ahafo South, construction started in the April of 2004, environmental
Figure 6-4: Newmont’s Ahafo North and South concession in the Brong Ahafo Region, Ghana. 

*Source:* Constructed from Newmont’s Ahafo South Disclosure, 2005
permit was issued in 2005, mining commenced in January 2006 and the first gold was poured in July 2006.

In the Asutifi district (Ahafo South Area) and Tano North district (Ahafo North Area), agricultural account for 68.2 % and about 71% of the respective major activities. The populations of the Tano North and Asutifi districts according to the 2000 census were estimated to be 123,404 and 84,485 respectively (Ghana population census in World business council for sustainable development, 2009). More than half of the Asutifi adults and two-thirds of the youth are illiterate while Tano adults and youths are comparatively more literate; however, both districts have great discrepancies in terms of male and female literacy. There are also discrepancies in poverty incidence in the two regions, thus 60% for the Asutifi district and 48% for the Tano district although the incidence of poverty is higher than the average for the Brong Ahafo region (36%) as well as for Ghana as a whole (Ghana population census in World business council for sustainable development, 2009).

6.5.2 Background of Akyem Project

The project in the Birim area of the eastern region of Ghana is termed the Akyem project by NGGL (Figure 6-5). The physical characteristics and impacts of the mining concession (Public consultation and disclosure plan, Akyem project, 2010) are:
• Mining lease area of 63.75 km² out of which 19.07 km² is for mine development, safety and environmental zones and surface disturbance of 14.65 km² of which 0.74 km² will occur in the Ajenjua Bepo Forest Reserve (Figure 6-5),

• The Project would involve relocation and resettlement of eight hamlets (Nyamebeyere, Kerenkeren, Kwasi Kpofor, Badu, Kofi Aklo, Ayesu Zigah, Yaw Tano, and Metemano), one settlement (Yayaaso) and a number of individual residences (Figure 6-5). In total, approximately 1,700 households would be directly affected through the loss of structures or farmland (Public consultation and disclosure plan, Akyem Project, 2010).

The Akyem project is expected to process approximately 8.5 million tons of ore annually to ultimately extract 7.7 million ounces of gold over a projected 15-year life of mine (Public consultation and disclosure plan, Akyem project, 2010). Recently, the project has been approved for mining having met the entire licensing requirements including the environmental permit (Newmont’s Akyem project, 2010).

6.5.3 Sustainability Strategies and Programs in the Project Community

NGGL has implemented series of dynamic and innovative community development programs via partnerships with local, national and international agencies aimed to empower and improve the quality of life of the local inhabitants (Table 6-2). Specific social responsibility programs were designed to incorporate the proximity of
Figure 6-5: Newmont’s Akyem concession in the Eastern Region, Ghana. Source: Constructed from Public Consultation and Disclosure plan, Akyem Project, 2010
Table 6-2: Partnerships social responsibility projects of NGGL

<table>
<thead>
<tr>
<th>Projects</th>
<th>Scope</th>
<th>Issue area</th>
<th>Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community health and Well Being</td>
<td>Baseline health assessment at the community and health impact assessment within NGGL lease area</td>
<td>Health</td>
<td>Local, National and International</td>
</tr>
<tr>
<td>Ghana Responsible Mining Alliance (Global Development Alliance)</td>
<td>Collaboration to improve Ghanaian mining area communities local capacity building of governance structures, promotion of economic activities through private sector and determination and promotion of best practices in mining regions</td>
<td>Social Responsibility</td>
<td>National (Goldfields Ghana Limited), International</td>
</tr>
<tr>
<td>Reducing Malaria Morbidity</td>
<td>To support Ghana Health Services and related bodies communication mechanism in raising awareness of malaria-related sickness and its effects on productions</td>
<td>Health</td>
<td>International</td>
</tr>
<tr>
<td>Baseline household Morbidity Study in the Asutifi and Tano districts</td>
<td>Health baseline studies, including households health seeking behavior, women and child health, health facility morbidity pattern, household morbidity, prevalence of heavy metals among adults in the communities</td>
<td>Health</td>
<td>Local</td>
</tr>
<tr>
<td>Ahafo Agro business Growth Initiative (AAGI)</td>
<td>Setup an sustainable business operations independent of Newmont that would survive beyond the mine</td>
<td>Livelihoods</td>
<td>National, International</td>
</tr>
<tr>
<td>AED: Adapt-a-Cluster</td>
<td>Work with schools to improve teaching and learning in the classroom</td>
<td>Education</td>
<td>National</td>
</tr>
<tr>
<td>Community Protected Areas</td>
<td>Enhanced environmental protection, new economic opportunities and reduced poverty</td>
<td>Environment and livelihoods</td>
<td>International</td>
</tr>
<tr>
<td>Government accountability Improves Trust (GAIT II)</td>
<td>To strengthen democratic and decentralized governance through civic involvement and increased community advocacy for quality education</td>
<td>Governance</td>
<td>National and International</td>
</tr>
<tr>
<td>Business and BiodiversityOffsets Program (BBOP)</td>
<td>Conservation actions to compensate for the residual, unavoidable harm to biodiversity caused by major developmental projects to ensure no net loss of biodiversity, and where the possible, net gain</td>
<td>Biodiversity</td>
<td>International</td>
</tr>
<tr>
<td>Mining and Biodiversity</td>
<td>Conservation of biodiversity through scientific collaboration at all levels of the corporate field operations</td>
<td>Biodiversity</td>
<td>International</td>
</tr>
<tr>
<td>Ahafo Social Responsibility Forum</td>
<td>An avenue and multistakeholder context for discussion, making decisions and setting priorities for sustainable community development</td>
<td>Stakeholder Engagement</td>
<td>Local</td>
</tr>
<tr>
<td>Livelihood Enhancement and Community Empowerment Program Phase 1 (LEEP 1)</td>
<td>Enhance the livelihood of people in the mine take area, targeting: economically displaced, physically displaced and resettled or relocated by the project</td>
<td>Livelihoods</td>
<td>Local</td>
</tr>
<tr>
<td>Livelihood Enhancement and Community Empowerment Program Phase 2 (LEEP 2)</td>
<td>Develop social programs and infrastructure to improve quality of life and promote community empowerment in those areas who are experiencing secondary and indirect impacts from the development of the mine</td>
<td>Livelihoods</td>
<td>Local</td>
</tr>
<tr>
<td>Small to Medium –size Enterprises (SME) Linkages Program (Ahafo Linkages Program)</td>
<td>Provide train for business around the mines to be able to meet industry procurement requirements and standard</td>
<td>Livelihoods</td>
<td>International</td>
</tr>
<tr>
<td>Other</td>
<td>Mobile phone coverage, upgrading roads and transport access, strengthening power supply grid and improving access to electricity supply, provision of water, sanitation, upgrading local clinics and training centers, school construction</td>
<td>Livelihoods</td>
<td>Local</td>
</tr>
</tbody>
</table>
communities to the mine. Most of the livelihood programs were for the immediate mine-impact areas while other mining development initiatives targeted the wider communities. NGGL was also required by law to compensate the owners of farms affected by the project and the resettlement of the to-be affected communities in order to gain access to their concession. Moreover, Newmont has community consultation best practices in dealing with local stakeholders (Arthur, 2009) such as:

- Friday meetings with Asutifi community representatives from the district assembly, environment consultants, health services, community leaders and similar groups
- A public forum on local radio stations to increase sustainability awareness and public participation in its operations
- Information centers at Ntotroso, Gyedu, Kenyasi No.1 and Kenyasi No. 2 to facilitate information flow between communities and the mine
- Independent consultants were contracted in the development, implementation, and evaluation of the NGGL CSR programs. For example, the Opportunities Industrialization Center International (OICI) is the principal consultant for the design and development of livelihood programs (Hilson, 2006). Other independent local and international social impacts' assessors reviewed the social compliance and performance of the projects.

The principal communities located in and around the Newmont’s Ahafo mining lease are Kenyase No. 1, Kenyase No. 2, Ntotoroso, Wamahinso and Gyedu (Newmont Ghana gold limited, 2006), (Figure 6-4). Even though the social responsibility partnership programs addressed a specific sustainable development issue area, the Ahafo Social
Responsibility Forum (ASRF) is the only local multistakeholder platform that allows for discussion, decision-making and priorities setting specifically for sustainable community development of the Ahafo Mine Communities (AMC), (Table 6-2).

6.5.4 Ahafo Social Responsibility Forum (ASRF) and Newmont Ahafo Development Foundation

The ASRF made up of 53 members representing traditional rulers, local and regional governments, youth, women, farmers, local NGOs, NGGL, an independent moderator and co-moderator deliberated for over two years and arrived at three main agreements for sustainable community development of the Ahafo Mine Community (AMC).

1. **Relationship Agreement**: aimed to strengthen further the cordial relationship between NGGL and the community

2. **Employment Agreement**: focused to spell out modalities governing the employment of locals by NGGL

3. **Foundation Agreement**: focused on the funding and implementation of sustainable development projects within the community
In 2008, the Newmont Ahafo Development Foundation (NADeF) was subsequently formed as a trust that will be funded by NGGL pre-mining voluntary commitment to contribute $1 per ounce of gold sold and 1% of net pre-tax annual profit from its mining operation in Ahafo to run the foundation agreement above (Newmont Ahafo development foundation, 2009). A nine-member Board of Trustee (BOT) manages the fund, makes decisions on investment, and allocates funds in accordance with the principles established by the ASRF. In addition, the BOT has the Finance and Administrative, and Projects sub-committees who are charged with the responsibilities of designing the guidelines and procedures for the foundation. The secretariat of the BOT formed in 2009 functions with the support from the two sub-committees and NGGL. The secretariat is responsible for establishing the basic procedures and protocols for running the foundation and helping the Sustainable Development Committees (SDC) of the various communities to understand the processes of development planning at the community level. Moreover, the secretariat responsibilities include the submission of project proposals to the BOT for support and establishment of project contractors database in collaboration with Newmont, the District Assembly and the Ahafo Local Businesses Association (ALBA).

The Development Foundation (NADeF) is mandated by the Ahafo Social Responsibility Agreement to run its programs based on the following distribution of the fund:

- Human resource development, 24%;
- Provision of infrastructure, 23%;
• Provision of social amenities, 18%;
• Economic empowerment, 17%;
• Protection of natural resources, 12%;
• Support for cultural heritage and sports, 6%.

Concerning infrastructural projects, the secretariat requires the SDC to prepare project proposals after consultation with community members, and then send them for endorsement by their respective district assemblies. The Asutifi and Tano North district assemblies work with the communities to prepare all the budgets needed for projects and endorse all the approved infrastructural project proposals before submission to the NADeF Secretariat. The engineers of the district assemblies prepare the bills of quantities for the proposed projects while the Project committee discusses the various project proposals and make recommendations to the BOT (Newmont Ahafo development foundation, 2009). As a follow-up to the recommendation of the BOT, the secretariat will arrange meetings with the SDCs, chiefs and elders of each community about the board’s decision regarding their proposed projects. Currently, the secretariat has trained all the SDCs on the criteria for writing a project proposal, the communal labor component for the construction of each project and scholarship awards (Newmont Ahafo development foundation, 2009). Finally, the secretariat will prepare tender documents to invite contractors to bid for any project approved by the BOT. The Tender Opening and Evaluation Committee, a sub-committee of the tender board of NADeF will evaluate the
tenders and submit a tender evaluation report, including recommendations to the BOT to approve and award contracts. For human resource development projects such as scholarships, the forum has adopted guidelines for the award scholarship by which all the communities must abide (Newmont Ahafo Development Foundation, 2009). However, the communities were allowed to adopt their own rules of procedure for the selection of qualified students from the community towns. Nevertheless, communities were tasked to use the guide approved by the forum in the implementation of the scholarship programs.

6.6 Achievements and Recognitions of NGGL Sustainable Community Development Practices

NGGL was selected for this study because it complies with the mandatory Ghanaian regulatory requirements and has implemented numerous beneficial voluntary projects for its host communities. Moreover, NGGL operations complies with international requirements such as International Finance Corporations (IFC) consultation requirements, IFC performance standards, International Council on Mining and Metals (ICMM) principles for sustainable development, International Cyanide Management Code (ICMC) and Newmont’s CSR standards (Newmont’s Ahafo South disclosure, 2005). Further, NGGL social responsibility strategies and current positive impacts have been recognized as a success story in the role of business in community development that goes beyond operations (Hilson, 2006). These social responsibility programs by NGGL ensure transparency, inclusiveness, accessibility and respectful approach with key
stakeholders within the community (Arthur, 2009). Therefore, it was not surprising that NGGL projects earned numerous international awards that include:

- The best procurement community award at the 2010 Chartered Institute of Purchasing and Supply (CIPS) procurement professional award. This was based on the company’s role in safeguarding and enhancing its brand values while undertaking a role in using procurement for social and economic enhancement;

- The best supplier diversity project at the 2010 Chartered Institute of Purchasing and Supply (CIPS) procurement professional award. This was based on NGGL use of local small and medium enterprises in supplier development;

- The best procurement male professional of the year at the 2010 Chartered Institute of Purchasing and Supply (CIPS) procurement professional award. The NGGL manager responsible for local supplier and contractor development was adjudged as the most effective contributor to NGGL in terms of innovation, leadership, knowledge sharing and good team playing (Newmont Ghana’s Ahafo linkages program won awards, 2010);

- Newmont Ghana recently ranked 16th on Corporate Responsibility (CR) magazine’s 100 best corporate citizens list. In this ranking procedure, stakeholders such as investors, employees and government regulators monitor the corporate citizenship efforts of firms to consistently pursue sustainable, socially and environmentally responsible practices (Corporate responsibility magazine’s 100 best corporate citizens, 2010);
• Newmont was consecutively included in the Dow Jones Sustainability World Index (DJSI) from 2007 to 2010. The DJSI independently evaluates companies long-term economic, environment, and social performance to identify the top 10 percent of performers in areas of sustainability. In 2007, Newmont became the first gold company included in the index (Newmont in DJSI, 2010).

6.7 Methods

This study aims to evaluate the contributions of NGGL community development activities to the sustainable development of its host community. The objectives of this study are to:

• Evaluate the operationalization and effectiveness of NADeF programs on the ground to fulfill real community needs;
• Analyze the net potential contribution of the NADeF programs to the sustainable development of the host community.

The 7QS was used as the sustainability criteria to evaluate the operations of NADeF six programs (human resource development, provision of infrastructure, provision of social amenities, economic empowerment, protection of natural resources, and support for cultural heritage and sports) mandated by the ASR agreement. First, an overall template within the context of 7QS was developed to guide the assessment of the practices of NADeF (Table 6-3). The data for the assessment was derived from the content analysis of the NADeF’s 2009 and 2010 annual reports and other relevant documents that are
available on the foundation’s website. The information deduced from the data was then used to provide answers to the questions in the 7QS template. The answers covered the present situation, the actions required or recommendation for future benefits and the overall summary of the CSR practices for each question. Moreover, the answers to each question were compiled to establish the overall level of sustainability of the NADeF. Finally, the overall summary of the CSR practices for each question were synthesis to determine the net contribution (positive or negative) of the NADeF programs to the sustainable development of the host community.

6.8 Results

Table 6-4 shows the result for the assessment of the design and implementation strategy of the NADeF program in the current situation and the desired future through the lens of the 7QS framework. Presently, elements of the NADeF program have positively answered all the components of the 7QS except for the environment component.
### Table 6-3: Seven questions to sustainability (7QS) assessment framework

<table>
<thead>
<tr>
<th></th>
<th>Engagement</th>
<th>People</th>
<th>Environment</th>
<th>Economy</th>
<th>Traditional and non-market activities</th>
<th>Institutions &amp; governance</th>
<th>Synthesis; continuous learning</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Are engagement processes in place and working effectively?</td>
<td>Will people’s well-being be maintained or improved?</td>
<td>Is the integrity of the environment assured over the long term?</td>
<td>Is project economic viability assured; will the economy of the community and region be better off as a result?</td>
<td>Are traditional/non-market activities better off as a result?</td>
<td>Are rules, incentives, programs and capacities in place to address project consequences?</td>
<td>Does a full synthesis show that the net result will be positive in the long term; is there periodic re-assessment?</td>
<td></td>
</tr>
</tbody>
</table>
6.8.1 Engagement

The membership of the forum with oversight responsibility for implementing the agreement consists of the following diverse stakeholder representatives:

- Regional authorities (regional minister of the Brong Ahafo)
- NGGL (general manager of environment and social responsibility; external affairs manager, external affair's superintendent of the Ahafo Mine)
- District authorities (the three members of parliament within the two districts, two district chief executives, and two presiding members of the district assemblies)
- Local authorities (omanhene/chiefs and one subject from each community town nominated by the omanhene/chief)
- Local community members (two chief farmers, one from each district; six representatives of women groups, three from each district; ten youths from each community, two farmers representative, one from each district)
- Non-Governmental Organizations (two representatives, one from each district)
- External moderator and co-moderator appointed by the forum (Table 6-4).

These stakeholders develop the projects for the foundation. To ensure effective communication at the community level, the program has SDCs in each of the communities who in consultation with the local people prepare project proposal and send them for endorsement by the respective DA. To ensure effective project delivery, the Asutifi and Tano North district assemblies work with the communities to prepare all the
Table 6-4: Profile of the NADeF within the context of the seven questions to sustainability (7QS)

<table>
<thead>
<tr>
<th>Engagement</th>
<th>People</th>
<th>Environment</th>
<th>Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are engagement processes in place and working effectively?</td>
<td>Will people’s well being be maintained or improved?</td>
<td>Is the integrity of the environment assured over the long term?</td>
<td>Is project economic viability assured; will the economy of the community and region be better off as a result?</td>
</tr>
<tr>
<td>Present</td>
<td>Local community members received benefits from employment, training and apprenticeship programs. Sustainable Development Committee members acquire transferable skills through capacity-building training programs. Award of Scholarships for deserving students from primary to tertiary educational levels. Educational and social infrastructure projects that include the construction of school blocks, library and teachers accommodation, community water closet toilet facilities and the construction and mechanization of water projects. Renovation and construction of community’s medical facilities.</td>
<td>Project activities are unconcerned about the environment. No collaborative efforts for inspections and site visits of the mine. No assessment of the overall environmental cost, benefits and risks related to the cumulative effects of all projects.</td>
<td>The projects are contributing to the improvements in local businesses through the award of construction contracts and joint ventures. Contractors are advised to employ unskilled labor from the respective communities where the projects are being executed. There are strategic investments through treasury bills and fixed deposits to grow the NADeF endowment fund to maintain a financially viable community. Training workshop on economic empowerment was organized for the Sustainable Development Committees (SDC) members to build their capacity to be able to engage the communities to start some economic empowerment activities that will benefit community members.</td>
</tr>
<tr>
<td>Future</td>
<td>Enhance the local communities’ capacity to effectively engage with the sustainable development committee. Community members have to be furnished with information about skills outside of mining. Training of interested community members in skills that would be required during the closure of the mine (after the gold ore is not economically mineable).</td>
<td>There are opportunities for collaborative development of skills and opportunities to environmental monitoring, and enforcement and regulatory compliance. Specialized skills and capacity related to closure and post closure such as environmental reclamation and restoration must be developed for the community.</td>
<td>Local business must acquire skills in other business opportunities to ensure business continuity after the closure of the mine.</td>
</tr>
<tr>
<td>Summary</td>
<td>The project took off with good collaborations and engagements of all stakeholders. This continuous process may be enhanced and must be encouraged.</td>
<td>The projects have been the most dominant development, and the award of scholarship to local indigenes is very profound. Training of locals for mine reclamation jobs, closure jobs and long-term jobs independent of mines are the way forward for the future.</td>
<td>There is a contribution to the local economy from the employees of the local contractor. However, in future, there are further opportunities in mining closure activities that could further enhance employment and business opportunity for the Ahafo community.</td>
</tr>
</tbody>
</table>
## Table 6-4: Continued

<table>
<thead>
<tr>
<th>Traditional and non-market activities</th>
<th>Institutions &amp; governance</th>
<th>Synthesis; continuous learning</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are traditional/non-market activities better off as a result?</td>
<td>Are rules, incentives, programs and capacities in place to address program consequences?</td>
<td>Does a full synthesis show that the net result will be positive in the long term? is there periodic reassessment?</td>
<td>The NADO FP has demonstrated significant contribution to the development of the host community socially and economically through an effective collaboration between all stakeholders. However, no system exists to address environmental issues related to the program or NGGL operations.</td>
</tr>
</tbody>
</table>

### Present

| Enhancement of the Chief’s palace and support for the celebration of festivals | Board of trustee and related committees are mandated to run the various aspects of the program and the approval process | There is a review system in place to monitor if community needs are being addressed. In 2010, trustees held five board meetings and worked closely with the secretariat to achieve various milestones for the Foundation which included; 18-Month Operational Plan, NADO FP website development, development of Standard Administrative Procedures and Policies, 3-Year Operational Budget. Accountability and stewardship by ensuring that the foundation is more accurately and promptly able to show to stakeholders the outcomes and some impacts being made with the resources bestowed to NADO FP. The foundation also pays special attention to promoting organizational advancement, ensuring improved governance and appropriate implementation of systems and processes as well as targeting projects and programs that would continue to add value the Ahafo Community |

### Future

<table>
<thead>
<tr>
<th>Actions Require</th>
<th>Actions Require</th>
<th>Actions Require</th>
<th>Actions Require</th>
</tr>
</thead>
<tbody>
<tr>
<td>More efforts are needed to strengthen the community’s culture practices</td>
<td>The mandates of the board of trustee and related committees are good. However, the learning continues on all sides.</td>
<td>Good procedure, however, continues learning on all sides must be encouraged.</td>
<td>Over the long-term, the program must address ways to build skills and capacity of the local communities that will allow them to participate in mining operations and post-closure activities. In addition, there should be collaborations in environmental regulatory compliance requirements and enforcement of activities. Local businesses must also be trained on another business to enable them survive after the closure of a mine.</td>
</tr>
</tbody>
</table>

### Summary

| There is low sensitivity to local community cultural and traditional practices. This need to be advanced and encouraged | Good institutional arrangements and governance for the execution of the project. This has to be maintained and enhanced. | There is an efficient monitoring and evaluations of programs and adaptive management of programs | Overall, the NADO FP program is effective to fulfill the actual community need. However, the key to long-term contributions to sustainable development includes high sensitivity about the environment, enhancing the skills and capacity of communities and local businesses to work directly and indirectly beyond the operations of the mine. |
the budgets needed for the projects, and endorsed all the infrastructural project proposals for submission to NADeF Secretariat (Newmont Ahafo Development Foundation, 2009).

6.8.2 People

Infrastructure and skills development have been the major targets for achieving a well-functioning community. Between 2009 and 2010, communities from both districts showed similar infrastructure needs (Newmont Ahafo development foundation, 2009; Newmont Ahafo development foundation, 2010). The NADeF board of directors approved most of these, which included classroom blocks, teacher’s residences, construction and maintenance of water supply and toilet facilities (Table 6-5). These necessities of living were inadequate within these communities. Moreover, several scholarships were awarded to boys and girls from the towns that live within the mine concession. In 2010, about 1,100 scholarships (70% male and 30% female) were presented to qualified students from the two districts (Table 6-6). Kenyasi No.1 had the majority of students (238 students) while Afrisipakrom had the least number of students (eight students), (Table 6-6). The other areas of work of the foundation that was aimed at enhancing the living conditions of the locals were improvements of the community’s medical facilities and capacity training programs for the SDCs that will allow its members to effectively engage with communities on matters regarding their development priorities.
### Table 6-5: Communities proposed projects and status

<table>
<thead>
<tr>
<th>District</th>
<th>Community Town</th>
<th>Proposed Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Construction of Six Unit Classroom Block with Office, Store, Staff Common Room and Computer Library</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Wamahinso</td>
<td><strong>Mechanization of three Boreholes</strong></td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Cultural Heritage – swearing-in of Chief</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Gyedu</td>
<td><strong>Construction of Teachers’ Quarters</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Ntotroso</td>
<td><strong>Construction of 2 No. 20-Seater Water Closet Toilet</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Drilling, Construction and Mechanization of 2 N Boreholes</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Town Layout</strong></td>
<td>✓</td>
</tr>
<tr>
<td>Asutifi</td>
<td>Kenyasi No. 1</td>
<td><strong>Construction of 1 No. 3 Unit Classroom Block with Office, Store, Common Room and Computer Library</strong></td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td>Kenyasi No. 2</td>
<td><strong>Construction of a Technical School</strong></td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Construction of 1 No. 3 Unit Classroom Block with Office, Store, Common Room and Computer Library</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Afrisipakrom</td>
<td><strong>Construction of Modern Library Complex</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Tano North</td>
<td><strong>Mechanization of 5 Boreholes</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Yamfo</td>
<td><strong>Renovation and Expansion of Community Palace</strong></td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Construction of Modern Toilet at Ward ’3’</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Construction of three Community Libraries</strong></td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td>Susuanso</td>
<td><strong>Construction of Community Library</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Construction of 1 No. 3 Unit Classroom Block</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Construction of Chief’s Palace</strong></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Adrobaa</td>
<td><strong>Construction of 1 No. 4 unit Teachers’ Quarters</strong></td>
<td>✓</td>
</tr>
</tbody>
</table>
Table 6-6: Scholarship awards to students from the various communities

<table>
<thead>
<tr>
<th>Community Towns</th>
<th>High School Students</th>
<th>University/College Students</th>
<th>Total Number of students</th>
<th>Male Percentage</th>
<th>Female Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrobaa</td>
<td>63</td>
<td>11</td>
<td>74</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>Afrisipakrom</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Gyedu</td>
<td>44</td>
<td>11</td>
<td>55</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>Kenyasi No.1</td>
<td>171</td>
<td>67</td>
<td>238</td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>Kenyasi No. 2</td>
<td>114</td>
<td>118</td>
<td>232</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>Ntotroso</td>
<td>70</td>
<td>36</td>
<td>106</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>Susuanso</td>
<td>26</td>
<td>11</td>
<td>37</td>
<td>73%</td>
<td>27%</td>
</tr>
<tr>
<td>Terchire</td>
<td>100</td>
<td>28</td>
<td>128</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td>Wamahinso</td>
<td>129</td>
<td>27</td>
<td>156</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>Yamfo</td>
<td>44</td>
<td>24</td>
<td>68</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>767</strong></td>
<td><strong>335</strong></td>
<td><strong>1102</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Newmont Ahafo Development Foundation, 2009; Newmont Ahafo Development Foundation, 2010
6.8.3 Environment (Natural Resources)

In this period of global awareness about the protection of the natural environment, surprisingly, no community project/program was devoted to environmental matters. In 2009, the NADeF assigned 17% of its fund (GH¢ 887,410.74) to environmental matters but the community never utilized it (Table 6-7). For example, Kenyasi No. 1 in the Asutifi district was allocated GH¢144,115.50 in the year 2010 for community projects related to environmental matters; however, the same amount was available at the end of that year since no part of it was committed to such a project (Table 6-8). Similarly, Yamfo in the Tano North district never committed any of its 2010 funds of GH¢ 85,635.14 for environmental matters because their allocated fund for it was the same as available funds (Table 6-9). These suggest that environmental matters were not of priority to the communities.

6.8.4 Economy

Building contractors have been awarded numerous projects from the fund that leads to the viability of the local economy. The booming of local businesses will supply the required building and related materials to the project and employment of unskilled labor from the two districts. Moreover, the foundation has investments in Government of Ghana’s ninety one (91) days treasury bill at a rate of 13.7% and US dollars based fixed deposit investment at an annual average rate of 0.9% to grow the funds for a continuous financially viable community. Interestingly, the foundation allocated GH¢ 887,410.74
Table 6-7: Utilizations of allocated funds in Gh Cedis (GHC) for NADeF programs for the year 2009

<table>
<thead>
<tr>
<th>Funds type</th>
<th>Newmont Ahafo development Foundations (NADeF) Programs with their respective percent Share of Ahafo Development Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Human Resource Development 24%</td>
</tr>
<tr>
<td>Allocated (GHC)</td>
<td>1,252,815.16</td>
</tr>
<tr>
<td>Commitments(GHC)</td>
<td>367,904.20</td>
</tr>
<tr>
<td>Available (GHC)</td>
<td>884,910.96</td>
</tr>
</tbody>
</table>
Table 6-8: Utilizations of allocated funds in Gh Cedis (Gh¢) for NADeF programs for the year 2010 for Asutifi District Communities

<table>
<thead>
<tr>
<th>Community Towns</th>
<th>Fund Type (Gh¢)</th>
<th>Newmont Ahafo development Foundations (NADeF) Programs with their respective percent share of Ahafo Development Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Human Resource Development 24%</td>
</tr>
<tr>
<td>Ntotroso</td>
<td>Allocated</td>
<td>203,457.18</td>
</tr>
<tr>
<td></td>
<td>Commitments</td>
<td>113,478.00</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>89,979.18</td>
</tr>
<tr>
<td>Wamahinso</td>
<td>Allocated</td>
<td>101,791.23</td>
</tr>
<tr>
<td></td>
<td>Commitments</td>
<td>24,700.00</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>77,091.23</td>
</tr>
<tr>
<td>Gyedu</td>
<td>Allocated</td>
<td>101,791.23</td>
</tr>
<tr>
<td></td>
<td>Commitments</td>
<td>25,379.00</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>76,412.23</td>
</tr>
<tr>
<td>Kenyasi No.1</td>
<td>Allocated</td>
<td>203,457.18</td>
</tr>
<tr>
<td></td>
<td>Commitments</td>
<td>33,000.00</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>170,457.18</td>
</tr>
<tr>
<td>Kenyasi No.2</td>
<td>Allocated</td>
<td>203,457.18</td>
</tr>
<tr>
<td></td>
<td>Commitments</td>
<td>50,660.00</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>152,797.18</td>
</tr>
</tbody>
</table>

Source: Newmont Ahafo Development Foundation, 2010
## Table 6-9: Utilizations of allocated Funds in Gh Cedis (GH¢) for NADeF Programs for the year 2010 for Tano North District Communities

<table>
<thead>
<tr>
<th>Community Towns</th>
<th>Fund Type (GH¢)</th>
<th>Newmont Ahafo development Foundations (NADeF) Programs with their respective percent share of Ahafo Development Fund</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Human Resource Development</td>
<td>Infrastructure Development/ Social Amenities</td>
<td>Economic Empowerment</td>
</tr>
<tr>
<td>Adrobaa</td>
<td>Allocated</td>
<td>75,795.32</td>
<td>129,483.67</td>
</tr>
<tr>
<td></td>
<td>Committments</td>
<td>39,800.00</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>35,995.32</td>
<td>129,483.67</td>
</tr>
<tr>
<td>Susuanso</td>
<td>Allocated</td>
<td>94,838.11</td>
<td>162,015.10</td>
</tr>
<tr>
<td></td>
<td>Committments</td>
<td>12,232.00</td>
<td>130,933.73</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>82,606.11</td>
<td>31,081.37</td>
</tr>
<tr>
<td>Terchire</td>
<td>Allocated</td>
<td>83,061.65</td>
<td>141,896.98</td>
</tr>
<tr>
<td></td>
<td>Committments</td>
<td>40,860.00</td>
<td>52,037.25</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>42,201.65</td>
<td>89,859.73</td>
</tr>
<tr>
<td>Afrisipakrom</td>
<td>Allocated</td>
<td>64,269.42</td>
<td>109,793.59</td>
</tr>
<tr>
<td></td>
<td>Committments</td>
<td>10,480.00</td>
<td>73,154.60</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>53,789.42</td>
<td>36,638.99</td>
</tr>
<tr>
<td>Yamfo</td>
<td>Allocated</td>
<td>120,896.66</td>
<td>206,531.80</td>
</tr>
<tr>
<td></td>
<td>Committments</td>
<td>17,315.20</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>103,581.46</td>
<td>206,531.80</td>
</tr>
</tbody>
</table>

**Source:** Newmont Ahafo development foundation, 2010
project utilized it (Table 6-7). This is evident in the expenditures of the various community groups. For example, Ntotroso in the Asutifi district never committed any of its 2010 allocated funds to projects related to economic empowerment as a result its allocated fund of GH¢144,115.50 is equal to the available fund (Table 6-8). Similarly, Adrobaa in the Tano north district did not utilize its allocated economic empowerment fund of GH¢53,688.35 (Table 6-9).

6.8.5 Traditional and Non-market Activities

The foundation has supported cultural and traditional practices of the communities especially those related to chieftaincy matters. Aside from Ntotroso, all the communities’ projects include those about renovation and construction of the Chief’s palace (Table 6-10). The other issues that the foundation has supported include the swearing-in ceremony of the Chief at Wamahinso, construction of community durbar (festival) venues in Kenyasi No. 2, celebration of Apomasu festival and supply of equipments for schools sporting events in Ntotroso (Table 6-10).

6.8.6 Institutions and Governance

Further, the board of trustee manages and controls the funds, makes decisions on investments and allocates funds in accordance with the principles and agreed projects as
established by the ASRF. Under the board are the finance and administrative sub-committee, projects sub-committee and the secretariat of the foundation. The project sub-committee reviews communities project proposals, and make the necessary recommendation and needed follow ups with the SDCs before the project will be finalized.

6.8.7 Periodic Re-assessments

There are reassessment processes to check if community needs are been addressed. The foundation has an accountability and stewardship processes to show stakeholders the outcomes and impacts of the foundation’s projects. Moreover, the BOT held meetings with the secretariat to achieve various milestones for the foundation (Newmont Ahafo Development Foundation, 2010). To ensure effective management and monitoring, the foundation pays special attention to promoting organizational advancement, improved governance, and implementation of process, system, targeted projects, and programs that will add value to the communities.
<table>
<thead>
<tr>
<th>Community</th>
<th>Project Description</th>
<th>Project Cost (Approved), GH¢</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wamahinso</td>
<td>Swearing-in of Wamahinso Chief</td>
<td>2,500.00</td>
<td>Payment made and project executed</td>
</tr>
<tr>
<td></td>
<td>Renovation of Chief’s Palace</td>
<td>5,500.00</td>
<td>Payment made and program executed</td>
</tr>
<tr>
<td>Kenyasi No. 1</td>
<td>Support the construction of on-going palace project</td>
<td>8,600.00</td>
<td>Payment made for the project execution</td>
</tr>
<tr>
<td></td>
<td>Support the construction of on-going palace project</td>
<td>8,646.00</td>
<td>Payment made for the project execution</td>
</tr>
<tr>
<td>Kenyasi No. 2</td>
<td>Community Durbar grounds (to be used for community gatherings, funerals and other celebrations)</td>
<td>69,945.63</td>
<td>Payment made and project executed</td>
</tr>
<tr>
<td></td>
<td>Construction of Chief’s palace</td>
<td>18,617.00</td>
<td>Payment made and project executed</td>
</tr>
<tr>
<td>Susuanso</td>
<td>Construction of palace project</td>
<td>4,030.00</td>
<td>Payment made for the project execution</td>
</tr>
<tr>
<td>Ntotroso</td>
<td>Celebration of Apomasu Festival</td>
<td>15,000.00</td>
<td>Payment made and program executed</td>
</tr>
<tr>
<td></td>
<td>Supply of equipments for Schools sporting event</td>
<td>8,000.00</td>
<td>Payment made and program executed</td>
</tr>
<tr>
<td>Afrisipukrom</td>
<td>Construction of chief’s palace</td>
<td>25,353.00</td>
<td>Payment made and project executed</td>
</tr>
</tbody>
</table>

Table 6-10: Traditional and non-market activities approved projects
6.9 Discussion

The results of this study indicate that a multistakeholder partnership CSR program can promote the development of mining host communities and a successful mining operation. These findings are in accordance with community consultation literatures that show that mining companies will gain support for their projects from local stakeholders when all the concerned groups of the host community are involved in the planning and implementation of community development programs (Fiddler, 2009; Gifford and Kestler, 2008; Kemp et al, 2006; Davis, 1998; Labone, 1999; Davis, 1998). The ASRF had representatives from all groups of the communities who in conjunction with representatives from NGGL deliberated for two years to develop agreements for a successful mining operation and the development of the communities through the NADeF. The NGGL Ahafo projects have not led to any significant conflict with the host community due to the positive contributions of the more inclusive NADeF’s program. Previous researches have show that mining host communities tend to stage local opposition that affects the viability of a mining project when a mining companies fail to adequately consult them on development projects and/or refuses to implement prior reached development agreements (Treebeck, 2007; Jenkins, 2004; Quiroga, 2002). These therefore suggest that the Ahafo mine community has welcome NGGL.

This study has shown that a mining company can gain a community’s social license to operate as long as the local stakeholders are recognized and allowed a transparent equitable participation in the development of CSR projects. The collaboration of representatives from all the community’s groups to develop agreements with NGGL
and programs for a corporate funded foundation is a powerful tool for the co-existence of a mine in a community. It is therefore not surprising that elements of NADeF strategies are present in the recent CSR programs of other corporate mining firms in Ghana. Mining “giants” in Ghana such as Gold Field Ghana Limited, Golden Star Bogoso/Prestea Ltd (GSBPL), AngloGold Ashanti Ayanfuri and Iduapriem have implemented similar development foundations. For example, Goldfields Ghana Limited has spent GHS 20.7 million on community development projects since the inception of its foundation in 2002 (Ghana News Agency, 2011). The Goldfield foundation is funded by production and profitability of gold through an annual contribution of US$1.00 of every ounce produced and 0.5 percent of pre-tax profit (Mustapha, 2007). The foundation supports education, health and income enhancements and alternative livelihood projects within the local mining communities. These projects were identified through consultations with stakeholders that include community leaders in operational catchments areas, regional governments and district assemblies. In 2005, the foundation launched the Sustainable Community Empowerment and Economic Development Program (SEED), a five-year community development program for the benefits of communities near the Tarkwa and Damang mines (Mustapha, 2001). Examples of the SEED program from the Damang mine area are conservation tailing farming aimed at building community capacity on effective and efficient farming techniques and the oil palm cultivation projects aimed to facilitate job creation and income generation in stakeholder communities (Aubyn, 2004). The budgets for community investment are distributed according to the following
percentages: 40% directed to alternative livelihoods, 40% into education, 10% to water and sanitation, and 6% towards other infrastructures.

Nevertheless, the Goldfield Ghana Limited’s Alternative Livelihood Program (ALP), a major component of the SEED program has been shown to have operational inefficiencies. The ALP was aimed at addressing complaints of the affected mining communities particularly the problems of livelihood loss and displacement of people by surface mining operations. Owusu-Koranteng (2008) field study of five of the eight SEED beneficiary communities in the Wassa-west districts of Western Region of Ghana identified development and implementation inefficiencies in the ALP. The company designed the projects as a reactive response to conflicts that its operations had with local stakeholders (Owusu-Koranteng, 2008). Other implementations inefficiencies associated with the project in the view of local members include the balloting system to select beneficiaries of the project. Further communities concern were that the items provided under the project could not restore the lost livelihoods because either the animals died a few days after they took delivery of them or the inputs arrived late (Owusu-Koranteng, 2008). In another study by Temeng and Abew (2009), similar weaknesses were found in the corporate funded projects particularly the ALP of Golden Star Bogoso/Prestea Ltd (GSBPL), AngloGold Ashanti Ayanfuri, Anglo Gold Ashanti-Iduapriem that were implemented by similar funding type, consultations and projects type by GGL. The field study of the effectiveness of some ALPs been pursued by these mining companies showed that the ALPs have been moderately successful (Temeng and Abew, 2009). The reasons assigned to the observed inefficiency were inadequate community participation
and lack of funding beyond the initial stage of mining company support. Other reasons for the inefficiencies in the implementations of ALP include lack of a well laid out roles of the various stakeholders and weaknesses in project concepts generations, appropriateness and targets (Temeng and Abew, 2009). The design and implementation inefficiencies of the CSR of other mines in Ghana outlined above were not encountered by NGGL. NADeF and its governing board and secretariat had an effective structure in place to run the foundation’s program. The NADeF programs were not established as a reactive response to a conflict with mining communities but rather as proactive program that would address the concerns of the communities before the operations of the mine. Moreover, as outlined above, the ASRF made up of community representative from the two districts (Asutifi and Tano North district) established the programs of the foundation. A well-established governing board and secretariat ran the NADeF programs with well laid out roles and procedures for the community sustainable development committees, project selection and approval. The governing board of the foundations reinvested part of the funds into treasury bills and government bonds to supplement the funds from NGGL. These strategies by the foundations could have led to the lack of significant conflicts between NGGL and its host communities in the Asutifi and Tano North district.

The goals of NADeF programs are beyond the traditional CSR practices such as infrastructure developments, and include notable projects such as the protection of natural resources, support for cultural heritage and sports, and economic empowerment. However, the analysis of the NADeF programs within the sustainability context revealed
certain mismatch between 7QS realms and what communities want. The communities substantially focused on infrastructure developments/social amenities, human resource development and recently on cultural heritage and sports matters at the expense of economic empowerment and natural resource (environmental) protection. The net result of such a selective prioritization could lead to an ineffective project when analyzed within the context of sustainable development.

Despite the historical negative impacts associated with gold mining being about the environment and the economy of the mineral host communities, the AMC were not worried about them. The environmental and economic aspects of building and operating a mine such as sitting and construction of roads, digging, processing and the depletion of the ore are practical systems that affect environmental protection and economic deprivation at the community level. There is room for local action and response to manage these impacts via a routine contribution of their local knowledge, experience and perspective about a mine beyond one-time forums organized during environmental impact assessment. Hence, to mitigate these impacts, there is the need to implement good community awareness program about responsible mining practices at the community level. Such a mitigation responsibility lies with the key local government authorities such as the local offices of the Ghana Environmental Protection Agency (GEPA) and the District Assemblies (DA) who have mandates that affect environmental monitoring and management. The local civic groups and their networks especially voluntary developmental organization can also empower the communities about economic practices
that can enhance their livelihoods during and beyond the operations of the mines. More specifically, the SDCs must raise awareness about the practices that are connected to the mine and affect the environment and economic viability of the communities especially after the mine closure.

Following the success of the NADeF through the ASRF forum, NGGL is applying a similar program in its intended mining project in Akyem, Brong Ahafo region of Ghana. This approach of early community involvement before the commencement of the mine was the key contributor of the success of the NADeF projects in the Asutifi district. The following are the pre-mining programs that NGGL is running in the Akyem area. NGGL has developed a best practice comprehensive public consultation and disclosure plans to address the communities in a way that is culturally sensitive, transparent, provides timely and accurate information to project-affected people and other stakeholders, and allow sufficient opportunity for stakeholder input and exchange (Public Consultation and Disclosure plan, Akyem project, 2010). Such a strategy was necessary because Ghana’s mining regulations and related laws lack a standard or clearly defined guidelines and requirements for a public consultation process to address a potential environmental and socio-economic impact that may arise due to the development of a mine. By this plan, NGGL has engaged the community stakeholders through formal meetings, public meetings and focus group meetings (youth, farmers, women, traditional authorities, local government agencies) as part of its commitment to increase community awareness about all aspects of the projects and listening to the community concerns about
their intended operations. Community stakeholders have toured current NGGL operations at the Ahafo mine (operating mine) and a closed mine so as to familiarize themselves with mitigation of environmental and social impacts, and mine closure and reclamation respectively (Akyem granted mining lease, 2010). These NGGL proactive mechanisms of involving the community for all the phases of the projects can guarantee them the community’s social license to operate. For this upcoming-project, NGGL has two major advisory committees. First, the compensation negotiations committee that was established in 2008 and charged with all matters related to compensation, land access, resettlement and the environment. The Akyem Social Responsibility Forum (Akyem SRF) is the second advisory committee that serves as the main stakeholders and development partners deliberative and planning body for community development and agreements.

The forum consists of representatives from the mining company, regional and district authorities, traditional leaders, youth, nongovernmental organizations and representatives from women groups from the affected mining communities (Akyem social responsibility forum, 2010). The Akyem SRF discussed issues relating to sustainable social investments, community development programs, capacity building, employment, and related livelihood enhancement and socio-economic benefits for project-affected people and communities in the Akyem Project Area (Public consultation and disclosure plan of the Akyem project, 2010). These show significant similarities between the program elements of ASRF and the Akyem SRF.
Nevertheless, the Akyem SRF has lessons to learn from the programs of the ASRF. The CSR practice of any mining company is incomplete unless it contributes to the sustainable development of the host communities because mining has inherent negative impacts on all the three components of sustainable development. Even though the NADeF programs made significant strides in the development of the AMC through prioritization of social development, however, the environmental and economic components of sustainable development were ignored. Such selective developments can lead to a net negative long-term contribution of any program to sustainable development of its host communities. As such, the Akyem SRF must ensure that the programs that they intend to recommend to the Akyem Development Foundation (ADF) would encompass all the components of sustainable development. Moreover, the communities must be required to ensure a balance of the components of sustainable development in their projects and programs they intend to propose to the ADF governing board.

6.10 Conclusion

Historically, mining activities have been associated with negative environmental and socio-economic impacts as well as significant source of government revenue. As a result, governments of mineral-endowed nations have sets of requirements and performance standards that mining projects (proposed and operating) have to meet. Moreover, the sustainable development discourse within the context of depletion of ore resources due to mining poses a global, national and local challenge to the sustainability
of the mining industry. The mining industry has therefore responded to these challenges with voluntary programs known as CSR that are beyond the national legal requirements for developing and operating a mine in order to demonstrate its contributions to the advancement of the well-being of its host community. The CSR projects have become essential components of business operations since the mining host communities could stage disruptions to the smooth running of a mine in order to register their displeasures at the operations of a mine. Such local events easily turn into a global one due to globalization of information technology and can affect the reputation of a particular mining corporation. Therefore, CSR programs are now common with most mineral development operations; however, the capability of the programs to address the sustainability of the host communities is still a challenge.

This study looked at CSR and its effectiveness on the ground to fulfill real community needs within the context of sustainability through a case study of NGGL social responsibility programs and projects in the Asutifi district of Ghana. In addition, it investigated the contributions of the communities CSR activities to the sustainability of their host communities.

The CSR activities of NGGL through the NADeF were well developed in consultations with stakeholder representatives from the mining-impacted communities. As a result, the communities have witnessed numerous improvements in infrastructure developments, educational and health facilities and other significant contributions from the foundation’s program. Notwithstanding the positive contribution of these
developments, the study revealed some gaps when the net contribution of the projects was evaluated within the sustainability context of 7QS. Such discrepancies between a standard (7QS) and communities needs illustrate the need for a benchmarking tool to assess the contribution of CSR practices to the development of mining host communities. The AMC have focused on their short term needs (e.g. infrastructure improvements) at the detriment of essential long-term needs (e.g. environmental protection, economic empowerment) that are important during and after the operations of a mine. It is therefore important that communities adopt standards such as the 7QS to assess the holistic contribution of mining to their development. With such a measurement tool, the gaps in the present needs of the communities and requirements for the future viability of the community would be determined and address for their sustainable development. Overall, the NADeF program is effective in fulfilling the actual community need. However, the key to long-term contributions to sustainable development includes high sensitivity about the environment, enhancing the skills and capacity of communities and local businesses to work directly and indirectly beyond the operations of the mine.

The study is subject to a few limitations such as the constrains in the use of secondary sources from the foundation’s website to conclude the success of the project. The argument in this work can best be supported if the findings from these secondary sources were also found in a field study of the community groups within the study area or access to the documentation of mining-stakeholders’ dialogues for the development of the most meaningful CSR projects. In future studies, the opinions of the local
communities need to be determined through interviews and the influence circle of stakeholders and the communities during the design of NADeF programs has to be evaluated.
References

Akabzaa, TM. (2000). *Boom and dislocation: the environmental and social impacts of mining in the Wassa West district of Ghana.* Third World Network, Accra


CHAPTER 7
CONCLUSION

7.1 Introduction

This dissertation examined the global quest for sustainable development through the lens of social responsibility contributions of the gold mining industry to local mining host communities. The review of the literature on global gold mining operations indicates the common view that gold mining’s impact is uniformly negative. The findings generally suggest a mismatch between the goals of the global gold mining industry’s social responsibility practices and local mining communities concerns and expectations. However, at the local level in Ghana, the gold mining industry has made positive contributions to the development of its host communities via Corporate Social Responsibility (CSR) programs and projects. The subsequent sections of this chapter give overview of the contributions of the dissertation to the literature, limitations of the thesis, policy and managerial implications from the study, and directions for future research. Even though aspects of these sections were described in each chapter, the focus here is a holistic summary of the dissertation.

7.2 Contributions of the Dissertation to the Literature

Drawing upon different analytical and theoretical frameworks, this dissertation filled a gap in the existing literature by providing new evidence on the factors that govern the operationalization and effectiveness of the gold mining industry’s CSR programs/projects. As described earlier, the different analytical and theoretical
frameworks include the media agenda setting theory, 7QS, LAMLM and the emerging best practices for sustainable development of the mineral industry.

Chapter two contributed to new knowledge in a number of ways. First, it established the factors that affect the sustainability disclosure/reporting levels of gold mining companies. Generally, previous CSR studies related to mining (e.g. Dashwood and Puplampu, 2010; Imbun, 2007; Gifford et al., 2010; Gifford and Kestler, 2008; Cheshire, 2010; Buultjens et al., 2010) did not investigate the factors that governed the nature of sustainability disclosures but rather focused on their development and implementation. Second, it showed lack of transparency in the sustainability disclosures of gold mining companies because the disclosure information was reported in the less informative qualitative form rather than the more informative quantitative form. A few studies (Coumans, 2010; Vintro and Comajuncosa, 2010; Viviers and Boudler, 2010, Jenkins and Yakovlevla, 2006) have partially explored the informative nature of CSR reports through the limited assessment of CSR accountability and reporting (Coumans, 2010; Vintro and Comajuncosa, 2010; Viviers and Boudler, 2010) and examination of the trends in social and environmental disclosure of mining companies CSR practices (Jenkins and Yakovlevla, 2006).

Chapter three highlighted the many global codes and initiatives in the extractive sector aimed at responsible gold mining. Generally, the five mining sectors had twenty related responsible gold mining codes and initiatives that fall under ten
themes. The mining industry adopted the goals of these codes and initiatives and developed strategies to secure the social license to operate since the local communities are the most directly impacted by mining operations. Many previous studies (Els, 2011; Kahindi and Beamish, 2010; Gifford and Kestler, 2008; Imbun, 2007; Kapelus, 2002; Newenham-Warhurst and Mitchell, 2000) have concentrated on case studies on responsible gold mining practices of gold mining firms, while limited research of the practice within the global context has been conducted. The chapter established the mining host communities concerns about gold mining practices within the context of the ten responsible gold mining themes. Second, the chapter demonstrated a mismatch between the gold mining industry’s and local mining communities’ prioritized responsible gold mining themes. This provided evidence for the continual global opposition to mining operations and the resultant public negative impression about mining operations despite the industry’s adoption and implementation of responsible mining codes and initiatives.

Chapter four contributed to the literature by displaying the use of newspaper information as a proxy to assess the gold mining concerns within the public domain. Based on the evidences of the abilities of media coverage of events to influence public agenda (Cox, 2006; Kwansah, 2003; Mc Combs and Reynold, 2002; Brown and Deegan, 1988; Mc Combs et al., 1997), this chapter established the main concerns and expectations of the gold mining stakeholders of Ghana from the analysis of public and private newspaper coverages of mining events. To the best of the
author’s knowledge, no previous research on the gold mining industry in Ghana has utilized newspaper articles.

Chapter five fills a gap in research by tackling the issue of mineral development policy within the sustainability framework. The chapter developed the assessment templates on the best-practice standard for mineral investment attraction and a proposed sustainable mineral investment policy model to benchmark the current Minerals and Mining Law of Ghana. The new knowledge gained from this chapter is varied. The current Minerals and Mining Law of Ghana is compatible with the best-practice standard for mineral investment attraction model but significantly incompatible with the sustainable mineral investment policy model.

Chapter six provided new evidence on sustainable mineral development through the case study of the operations of Newmont Ghana Gold Limited (NGGL) in the Ahafo mine community. This chapter showed that sustainable mineral development goes beyond infrastructure developments and spending money directly on community needs, but includes capacity building, jobs, training and business opportunities. In addition, a community-led approach to decisions for spending community development funds based upon a pre-agreed formula by a forum of representatives of the corporate firms, civic society and mining host community is the necessary condition for an operational sustainable mineral development. Aside from the study by Bury (2004) that was similar to the current study by its assessment of contribution of CSR at the community level, most previous studies have only partially investigated
this impact. Such studies were limited to the integration of community relations with corporate policy (Labone, 1999; Kemp et al., 2006), success of community consultation process (Davis, 1998; Fiddler, 2009; Gifford and Kestler, 2008; Harvey and Brereton, 2007) and the consequences of inadequate community consultations (Trebeck, 2007; Quiroga, 2002).

7.3 Limitations of the Dissertation

This dissertation has a number of limitations aside from its contribution to knowledge as described above. The sample of ten corporate gold mining firms used as a proxy for global mining companies may affect the extent to which the findings are generalizable. This is because the level of social responsibility disclosures displayed by the top ten companies ranked according to their market capitalization may not reflect those of the mining industry at large. In addition, the sample size may not be adequate to draw general trends in corporate gold mining sustainability disclosures. Nevertheless, it may be argued that the use of the top ten gold mining firms showed the gaps in sustainability disclosures within the best practices of corporate gold mining firms, which will not have been discovered due to their high visibility to both the investor and non-investor stakeholders. Other limitations in the findings of chapter two were the use of only the most recent annual social responsibility disclosures and lack of field investigations to establish the sustainability practices on the ground.
The analysis in chapter three relied on the goals of responsible gold mining codes and initiatives to establish the responsible gold mining practices by firms, an assertion that places restriction on current relevance of the findings. A signatory to a responsible gold mining codes and initiative may not necessarily lead to the effective implementation of its requirements. Therefore, using the findings as a basis for understanding company-community tensions in the gold mining sector should be treated with caution. Moreover, local mining host communities may have concerns and expectations that may not be within the capabilities of corporate mining firms, a situation that may not have been accurately captured by the news media. Hence, the use of the newspaper articles to measure the extent of responsible mining practices at the local level may be “flooded” with overestimation or skewed towards community concerns and expectations.

The limitation of chapter four is that the data on mining newspaper articles were collected in 1998-2008; this period is a bit long such that it may place some constrains on the current relevance of the findings. The concerns of various mining stakeholders may evolve over time as such using these findings as the basis of understanding their current concerns should be treated with caution. The review of additional newspaper articles such as those of the years 2009 and 2010 were not feasible within the logistical and time constrains of the dissertation. Nevertheless, some significant confidence can be drawn from the findings given that the five major gold mining stakeholders still fall into the two broad divisions of pro-mining and anti-mining. Another limitation of this chapter is the subjective nature of categorizing the newspaper articles, even though appropriate
steps were taken to attain consistency. The findings of this chapter could have been corroborated with a field survey or interviews with the various stakeholders to compare the current perceptions of the public in Ghana.

The search strategy for the constituents of the best practice mineral investment and sustainable mineral development model in chapter five that used published literatures available in the English language only may have missed other relevant practices available in other international languages. Nevertheless, since the intention of the countries of Latin America is to attract global mineral investors, the literature in English could have covered the current dominant constituents of their models. In addition, the subjective nature of deriving the major themes of the constituents of each model may affect the extent to which the findings are generalizable.

The analysis in chapter 6 used secondary data from the Newmont Ahafo Development Foundation’s website to demonstrate its success, a situation that restricts the confidence in the findings. The perceived success of the projects/programs as described by the foundation’s report may not reflect what the communities expect from the program. Hence, using the findings as basis of understanding a successful CSR program should be treated with caution. On the other hand, given the achievements and recognitions of NGGL sustainable community development practices (Corporate Responsibility Magazine’s 100 Best Corporate Citizens, 2010; Arthur, 2009; Hilson, 2006), there are elements of confidence in the findings of this chapter.
7.4 Policy Implications of the Findings from this Dissertation

Generally, the findings provide implications for policies to improve social responsibility disclosure and practices within the gold mining industry. Global gold mining firms aiming to be transparent with their social responsibility practices need to improve the content of the information they disclose in their sustainability reports. To enhance transparency in their social responsibility reports, global gold mining firms may need to disclose their social responsibility practices quantitatively and across all the themes of CSR.

A transparent social responsibility disclosure that involves quantitative disclosures of social responsibility practices coupled with operational global responsible gold mining codes and initiatives could decrease the negative public perception about mining operations. To do so, the goals of global responsible mining codes and initiatives should be designed to match the concerns and expectations of local mining host communities. The findings of this study illustrate that the expectations and concerns of the host mining communities can be derived from the trend analysis of tensions between companies and their host local communities that are reported in mining newspaper articles. A good source of such articles is the mines and communities website, an online resource of global newspaper articles affecting global mining host communities.

Policy initiatives aimed at promoting the positive contribution of gold mining in Ghana could rectify the pro-mining and anti-mining perceptions of the Ghanaian public that was established from the analysis of extent and intensity of newspaper coverage of
gold mining issue within the lens of media agenda setting theory. This can be achieved by raising public awareness of the perceived effects of gold mining through active mass media campaign. The campaign message should portray the benefits of mining as not only revenue generations and profits to companies but non-monetary gains such as contribution to social improvements and capacity building of local communities and opportunities for community led projects. The medium of transmission of those messages could be through television and newspaper programs with endorsements from NGOs and communities groups to establish credibility of the campaign. Moreover, the government of Ghana could incorporate the dynamics of mining and mineral policy making into such a campaign to correct the public’s perceived weakness related to sustainable mineral development policy. This section of the message should effectively communicate the need to balance the attraction and keeping mineral investors, and sustainable mineral development in mineral policy making to remain a competitive mineral-rich nation as well as ensuring sustainable development of Ghana. On the other hand, corporate mining firms can operate in harmony within their host communities when they establish and fund a community foundation whose programs/projects that were prior determined by the local communities within the sustainable development context but with minimal roles for the mining firm.
7.5 Implications from the Dissertation for Future Research

This dissertation, as already mentioned, enhanced the understanding of corporate social responsibility practices of the mining industry. However, there are areas where future research could improve the findings of the study.

Generally, in order to corroborate the findings presented in this dissertation, a study of the social responsibility practices of corporate gold mining firms should be conducted by the use of data from field interviews and/or information from the internet communication systems such as emails, instant messaging, and skype. Information retrieved by this mechanism will provide more substantive results related to the contribution of the gold mining industry to sustainable mineral development, which could vary according to the geographical location of stakeholders across the globe, and among local populations in a nation based on their proximity to mining operations and mining experience level. This proposed future data collection mechanism could be conducted via questionnaire to verify the findings of this study that were established from publicly available sources.

The data to be collected from the global survey of mining stakeholders would examine how companies claimed sustainability practices in public disclosure documents work on the ground. Given the findings that mining companies publish their sustainability practices in annual reports and signatory to numerous responsible mining voluntary codes and initiatives, there ought to be positive impacts from these voluntary practices. These claims in the public disclosure documents of corporate gold mining
firms and survey of the perceptions of other stakeholders related to mining operations can be compared for verifications. The corporate gold mining firms could use such findings to set-up operational social responsibility practices aimed at sustainable mineral development. Similarly, the public perceptions related to the gold mining that were derived from the intensity of newspaper coverage and the actual public perception obtained from field survey can be compared to corroborate the media agenda-setting theory. The results from such an analysis will reveal the influence of the vibrant Ghanaian media on public views related to gold mining. In addition, the findings that NGGL social responsibility programs/projects is a success in the Ahafo mine communities will be best verified from the field study of the perceptions of the communities within the study area.
References


