The Impacts of Mining on Arctic Environment and Society from Corporate Social Responsibility and Sustainable Development Perspectives

The Case of Jokkmokk (Kallak) Iron Mines in Northern Sweden

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Source for Cover Photo and Description: The cover picture portrays Rapadalen in Sarek’s National Park Sarek (http://da.wikipedia.org/wiki/Sarek_Nationalpark) by fitting it with another image of abandoned mined area taken to visualize about how mining with low conservation value or absence of mine reclamation seems to cause long-lasting and damaging effects on the landscape and environment. And hence, the incorporation of such scenario analysis based on this imaginary vision may create awareness of what is going to happen in case of the possible future outcome of mining areas in mountain region of Arctic in northern Sweden. This in turn may have positive effect on the present generation to be anxious and care about the future generations through integrating social and environmental concerns in mining industry and working towards achieving sustainable development to mining operations through approach of CSR and maintaining stakeholders’ perspective and optimize the benefits.

Yohannes Assefa Hassen
Preface

This Master’s thesis is Yohannes Assefa Hassen’s degree project in Environmental Management and Physical Planning at the Department of Physical Geography, Stockholm University. The Master’s thesis comprises 30 credits (one term of full-time studies).

Supervisor has been Peter Schlyter at the Department of Physical Geography, Stockholm University. Examiner has been Ingrid Stjernquist at the Department of Physical Geography, Stockholm University.

The author is responsible for the contents of this thesis.

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Dedication

I would like to express my deepest appreciation to my beloved wife Genet Kassahun who was always my support. I also want to thank my most loved younger brothers, Ermias Hailu and Endrias Hailu as they have been great support and energy to me; as well as my children whom I loved most, Hallelujah Yohannes, Mikael Yohannes, and Matthias Yohannes who made my life meaningful and feel alive.
Abstract

Extractive industry in Arctic is controversial due to the ecosystems and communities in the region are highly sensitive to natural and anthropogenic disturbances as it is one of the world’s global change hot-spots, as well as its uniqueness and distinctive social and ecological significance. As mining industry has developed into sophisticated operations, yet the basic causes of environmental pollution and degradation and impacts on the natural environment of the Arctic region remain unchanged. Mining in this environment may be faced with dilemmas as the result of adverse impacts they may cause and their escalating environmental footprints; as well as reactions from pressure groups and indigenous peoples, which in turn may have a detrimental effect on their reputations and financial performances. This may further have social, environmental and political risks in their present and future roles and operations. Thus, the mining industry ought to recognize the impacts in their operations, and are required to work towards minimizing the adverse impacts and maximizing the substantial benefits of their actions on the environment, the community and local people. Corporate social responsibility (CSR) and sustainability are supposed to be two of several principles used to examine the social and environmental endeavours and results of business activity.

The aim of this thesis is to assess the environmental and social impacts associated with major mining operations Arctic region, and to conduct preliminary review of the perspectives of CSR and sustainable development in countries across the Arctic region and subarctic, especially the United States of America (USA), Finland and Sweden. As well as conduct comparative study and analysis on how corporate entities in these countries dealing with the two theoretical frameworks and how they are approached in practice and managed, and information are disclosed. The study also concentrates on how these issues can be handled in the case of Jokkmokk (Kallak) Iron Mines in Sweden. Different methodological approaches and techniques have been adopted in this study. The literature review is supplemented by interviews with strategically important stakeholders. The Environmental Impact Assessment (EIA) statement is reviewed and conceptual modeling is also employed to demonstrate the dynamic effects and consequences of the Kallak North Iron Mines. The findings in this thesis propose that the corporations’ in the USA show differences from those of the European countries in defining and addressing social and environmental concerns; as well as managing CSR and sustainability issues and communicating them as there are qualitatively different practices and approaches to CSR in these countries. In conclusion, main points are suggested as important recommendations entailing of some clear expectations to fulfill on how CSR and sustainability issues may be handled by extractive industry including the case of Jokkmokk (Kallak North) Iron Mines.

Key Words: Mining Industry, Environmental Impacts, Socio-economic Impacts, Arctic Region, Corporate Social Responsibility (CSR), Sustainable Development, Environmental Impact Assessment (EIA), Stakeholders, the United States of America, Finland, Sweden, Jokkmokk (Kallak ) Iron Mines.
## Table of Content

1. Introduction .......................................................................................................................... 11
   1.1 Research Aim .................................................................................................................. 13
   1.2 Research Questions ......................................................................................................... 13
   1.3 Delimitation .................................................................................................................... 13
   1.4 Disposition ..................................................................................................................... 14

2. Methodological Approach..................................................................................................... 15
   2.1 Methods for Data Collection, Interpretation and Analysis ................................................ 16
      2.1.1 Literature Review .................................................................................................... 16
      2.2 Interviews ................................................................................................................. 16
   2.2 System Analysis: CLD construction ................................................................................. 17
   2.3 Data Collection, Handling and Analysis ........................................................................... 17

3. Theoretical Background for Corporate Social Responsibility and Sustainable Development, as well as Impacts from Mining in Arctic Region ..................................................................... 18
   3.1 Corporate Social Responsibility (CSR) - Synopsis ........................................................... 18
      3.1.1 Definitions of CSR .................................................................................................... 18
      3.1.2 Debates behind CSR Theories and Perspectives ........................................................ 20
      3.1.3 Stakeholder Theory Definitions and Perspectives of Stakeholders ............................. 22
   3.2 Theoretical Background on Sustainable Development ...................................................... 24
      3.2.1 Sustainable Development and its Universal Definition .............................................. 24
      3.2.2 Sustainable Development as Global Corporate Agenda ............................................. 24
      3.2.3 Corporate Sustainability in Mining Sector ................................................................ . 25
   3.3 Background on the Environmental and Social Impacts from Mining in Arctic Region ...... 26
      3.3.1 Arctic’s Environmental Sensitivity to Mining and Common Identified Impacts ...... 27
      3.3.2 Potential Environmental Impacts Related to Mining in the Arctic Region .......... 28
      3.3.3 Impacts of Mining on Landscape through Waste Disposal ........................................ 29
      3.3.4 Impacts on Water System ......................................................................................... 30
      3.3.5 Impacts of Mining on Air Quality ............................................................................. 31
      3.3.6 Impacts of Mining on Biodiversity and Habitat ......................................................... 31
      3.3.7 Impacts of Mining on Environment and Climate ....................................................... 32
      3.3.8 Potential Impacts of Mining on the Indigenous People in the Arctic Region .............. 33

4. CSR and Sustainable Development Issues Management Practices in Different Countries Based on Literature, and the Case Study of Jokkmokk Iron Mines in Sweden ........................... 35
   4.1 The Global Context of CSR and Sustainable Development Management Frameworks and Standards for Corporations .......................................................... 35
      4.1.1 International Frameworks for Managing and Reporting CSR and Sustainability .... 35
      4.1.2 The International Management Standards and Guidelines ........................................ 36
      4.1.3 The European Context of CSR Reference Framework .............................................. 37
5.2.1 CLD for the Socio-economic Impacts of the Jokkmokk Iron Mining Operations ...... 70
5.2.2 CLD for the Environmental Impacts of the Jokkmokk Iron Mining Operations ...... 72
5.2.3 CLD for Illustrating the Interaction and Consequences of Impacts of the Jokkmokk Iron Mining Operations in the Light of CSR and Sustainability ........................................ 74
5.3 Analysis of the Impacts in relation to the Jokkmokk (Kallak) Iron Mining Operations .... 78
6. Discussion ............................................................................................................................ 79
   6.1 Environmental and Social Impacts of Mining in the Arctic Region ......................... 79
   6.2 Comparison of the European and American CSR Practices and Management .......... 81
   6.3 Environmental Impacts of the Jokkmokk (Kallak) Iron Mining Projects and their Consequences ......................................................................................................................... 82
   6.4 Managing and Communicating CSR and Sustainability Issues of the JIM Projects .... 84
       6.4.1 The Various Perceptions Generated in the Context of Impacts of the JIM Projects ... 86
       6.4.2 The Economic, Social and Environmental and Legal Aspects Related to the JIM ..... 87
       6.4.3 Key Stakeholders’ Identification, Motives, Practices and Engagement of the JIM ... 89
       Interests, Concerns, Perceptions of Rights, and Expectations of Stakeholders ............. 89
       6.4.4 The Risks of Change and the Future Perspectives of the Jokkmokk Municipality ..... 93
7. Conclusion and Recommendations ....................................................................................... 96
List of References ..................................................................................................................... 98
List of Appendices .................................................................................................................. 108
List of Tables and Figures

Table 1: Primary and secondary and social and nonsocial stakeholders by Wheeler and Sillanpää (1997).

Table 2: Explicit and Implicit CSR Compared. Source: Matten & Moon, 2008

Table 3: Key Development in the field of CSR in Finland and Chronology. Source: Lozano et al. Governments and Social Responsibility, 2008.


Figure 1: Elkington’s triple bottom line view on CSR. Source: http://www.chessllc.com/TBL.aspx

Figure 2: Carroll’s pyramid on corporate social responsibility (Carroll, 1991). Source: Archie B. Carroll “Pyramid of corporate social responsibility”.


Figure 4: Population in Jokkmokk Municipality, Source: Sweden’s National Statistics data base during the period 2002-2013 (SCR). Author’s own figure

Figure 5: Development of Jokkmokk residents’ percentage age distribution. Source: Sweden’s National Statistics data base for the period 04 December 2013 (SCR). Author’s own figure


http://www.beowulfmining.net/Beowulf%20Ruoutevare%20Kallak%20conceptual%20study%20RMG%202010%20Mars.pdf and Projekt Kallak | What

Figure 7: The Socio-economic Impacts of the JIM Operations. Author’s own figure

Figure 8: The Environmental Impacts of the JIM Operations. Author’s own figure

Figure 9: CLD showing the interrelationship between economic, social and environmental impacts of the Jokkmokk Iron Mining and its consequences in the light of the paradigms of CSR and sustainability Principles. Author’s own figure
1. Introduction

As modern civilization has steadily grown dependent on mining for its survival needs, metals and minerals are destined to serve human requirements such as housing and in use, are consumed and for the provision of the required raw materials mining industry plays pivotal roles. In order to ensure the continuity of supply, a stable rate of replacement is required involving new mines (Pohl, 2011). The global demand for metals and minerals is also rapidly growing, powered by the growing industries of China, India and other Asian and Latin American countries. In such globalized world it seems unthinkable to survive without minerals. So that the existing society’s fate is tied to economic, social and cultural entities as they are captivated by them. The extraction and consumption of mineral resources are interrelated as the later governs the former one and such pattern is observed as it is reflected in the consumption that is continuously escalating in both middle- to high-income nations. The rapid development shown in the low-income countries also ensures how they are craving for satisfying their need for mineral wealth which is playing pivotal roles in the development of all nations. Thus, accessing mineral resources need not compromise the futures generations entitlement for minerals and this has to balance out in terms of economic, social and environmental costs associated with it (Prior, 2012 et. al).

The corporate sector as a driver of global economy relies on natural resources which are readily available. The environmental and social disaster that could be associated with their extraction will be solved through progress, scientific advancement and technological innovation. As well as through private capital flows, free trade policy and the odd charitable donations (Welford, 1997). The corporate activity has created a fertile condition for the emergence and escalation of large-scale industries. This in turn might have been supported by growing mining industries which are furnishing the necessary raw material for other industries and are posing adverse impacts on the environment and society. Nevertheless, this contributed to economic growth and environmental values become incompatible in the sense that economy and ecology as well as development and environment unable to proceed hand in hand. Welford (1997) underlines that the world has been faced with potential environmental and social crises pertaining to profit driven corporate practices, which translate into ‘business as usual’ dominated by liberal productivism and neoclassical economics. He also argues that the creation of wealth and prosperity of the current civilization depends largely on the non-renewable resources, which could be generated by compromising the future generations.

The negative impacts induced by mining sector have caused political risks in their present and future roles and operations. However, this implies that the forthcoming mining ventures, justly or wrongly, will be judged against the legacies of the past and currently existing companies with poor performances 1 (Arnold, 2010). Jenkins &Yakovleva (2006) by referring to Warhurst(2000) state that a great number of the environmental crises or human rights violation occurrences that have aided to the escalating societal concern for CSR over the last 40 years in the context of the mining or petroleum undertakings. Thus, the mining industry is considered a significant issue in debates about social and environmental responsibility. It is also noted that there is no other industry like extractive industry that has become highly noteworthy issue of in many countries and industries as it has greater concerns pertaining to sustainability and social responsibility of industry.

Furthermore, it is emphasized that several major incidents and scandals of environmental pollutions, as well as ecological and social disruption, including negative economic, health,  

and social impacts have occurred and recorded over the past few decades. Since 1975 hundreds of mining-related environmental incidents occurred worldwide and 75 percent of which have involved tailings dam ruptures (Sampat, 2003). To cite just some of the many environmental problems pertaining to mining accidents and destruction at mine sites across Arctic countries include: releases of toxic waste water from the Talvivaara mine\(^2\) in Finland in late 2012; the burst of tailings dam after heavy rain in Karamken, Magadan region, Russia in 2009; the collapse of tailings dam during reclamation work of Pinchi Lake, British Columbia, Canada in 2004; tailings dam failure at the Aitik mine, Gällivare, Sweden in 2000. A cyanide disaster occurred in 1992 in the Alamosa River, a tributary of the Colorado River in the United States\(^3\).

These and other incidents are commonly occurred because of the insensitive nature of the corporations to take adequate precautions. In response to these disasters, large mining industries have been trying to make the business case for a sustainable mining industry. Extractive industries need to take lesson from these incidents and prove their existence through documenting their performance and disclosure of their social and environmental information. Besides, the environmental crises, the human rights abuses have contributed towards the establishments of CSR on the corporate agenda. Companies at individual level have started to examine their social behavior and make commitments towards issuing CSR reports. This also necessitated a more responsible and careful mining and mineral exploration plan of action and enhanced management approaches based on global CSR and sustainability reporting frameworks. To sum up, the paradigm of CSR is an appropriate way for the corporations to be able to contribute to sustainable development that incorporates social, economic and environmental responsibility including the benefits of stakeholders and society.

Nevertheless, extractive industries, especially mining industry in Arctic and subarctic region is controversial. This is due mainly to the fact that the social-ecological systems in the region are highly sensitive to natural and anthropogenic disturbances as it is one of the world’s global change hot-spots, as well as its uniqueness and distinctive social and ecological significance\(^4\). Furthermore, it’s revealed that mining projects’ operations in this region are supposed to cause serious debates among the states, indigenous people, environmental organizations and transnational companies concerning the Arctic and subarctic region.

The project thesis is seeking to assess the environmental and social impacts in Arctic region, and conduct preliminary review on the concepts and perspectives of CSR and Sustainable Development within different countries across the Arctic. It also seeks to realize if the CSR plays an active role in assessing any corporate activities including mining and how CSR contribute to sustainable development by considering sustainable business traits like global economic awareness, environmental performance and social responsibility in the context of mining through integrating the two issues in handling the social and environmental impacts of the major mining operations including the case of Jokkmokk Iron Mines in Sweden.

\(^2\) Finland’s biggest chemical catastrophe in history: http://www.greenpeace.org/international/en/news/Blogs/makingwaves/chemical-spill-finland/blog/42935/

\(^3\) Chronology of major tailings dam failures: http://www.wise-uranium.org/mdaf.html

1.1 Research Aim

The aim of the project thesis is to assess the environmental impacts associated with major mining operations in Arctic region, and social impacts on the local people including the positive legacies that the mining leaves for the society. As well as undertake preliminary review on how the two paradigms, CSR and sustainable development, approached in practice in different countries across the Arctic countries, with especial emphasis to the United States/Alaska and two of the Nordic countries (Finland and Sweden). Furthermore, the aim is to discuss, analyze and to relate the different views on CSR and sustainable development and how these countries have addressed these issues related to the interaction between the company and society, especially the stakeholders who are affected by and who affects the mining activities in Arctic region. It also concentrates on how the issues are managed, information are communicated or reported within these countries; as well as how have the CSR and Sustainable Development issues been handled in the case of Jokkmokk (Kallak North) Iron Mines in Sweden based on the research questions.

1.2 Research Questions

This project thesis sets out to answer the following questions:

1. What are the environmental and societal impacts associated with major mining operations in Arctic region?
2. How are and Corporate Social Responsibility (CSR) and Sustainable Development handled in different countries cases based on literature?
3. How have Corporate Social Responsibility (CSR) and Sustainable Development issues been handled in the Jokkmokk case?

1.3 Delimitation

The focus of the project thesis is to assess the environmental and social impacts associated with major mining operations in Arctic region, and to conduct preliminary review of the concepts and perspectives of CSR and sustainable development in different countries of the Arctic and subarctic regions. Nevertheless, special emphasis placed on the United States (USA) and the Nordic countries like Finland and Sweden and to study how CSR and sustainable development can be handled in each of these countries. The thesis explores issues in corporate world in general and mining industries in particular. The study is carried out based on literature review adhering to the paradigm of CSR and Sustainability. In addition, it is intended to portray and elucidate how the CSR issues can be handled in the case of Jokkmokk (Kallak ) Iron Mines in Sweden. The case study gives especial emphasis to the legal frameworks for mining and mineral development and EIA study report of the projects of Kallak North as these are key policy requirements and comprehensive instruments in addressing environmental and social problems and impacts in general.

The thesis seeks to examine the mining activities in the recent past of project inception, the present and the future of the Jokkmokk (Kallak ) Iron Mines(JIM) projects. In this case, literature review is supplemented with interviewing of strategically important stakeholders. This is for the study and acquiring knowledge and collect data about the legacies and impacts of mining industry on environment and society. Furthermore, conceptual modeling is developed to demonstrate the overall dynamic effects and consequences of the mining project operations of the Kallak Project. Some key issues like social, economic, and environmental impacts and consequences, as well as managing and communicating CSR and sustainability issues are discussed as these are considered to be key points to ponder. The various perceptions generated related to the impacts JIM projects, and the comparison between the positive and negative impacts is also addressed. The interests, concerns, perceptions of rights,
and expectations of stakeholders; as well as the various challenges in the context of JIM projects are also important areas of focus in the discussion part. As the mining sites are located in environmentally sensitive region and vulnerable areas of the Saami communities some risks of change and future perspective of the Jokkmokk are presented and discussed in this paper.

1.4 Disposition

The thesis is prepared in seven sections. The first section starts with the introductory part and research area like the aim and research questions and delimitations. The second section discusses the methodological approaches and research methods employed. The third section presents the theoretical background that gives synopsis of the theoretical approach and key concepts like CSR and sustainability issues in the context of mining and mineral development. Topics like the global context of CSR and sustainable development frameworks for corporations including the United Nations initiatives and the European context of CSR frameworks; as well as background on the environmental impacts from mining industry in Arctic and some major identified impacts are presented. The global and national context of CSR and sustainable development frameworks across the Arctic countries presented with especial emphasis to countries like the USA, Finland and Sweden relating to the various initiatives taken in managing and reporting CSR and sustainable development issues in each of these countries is thoroughly deliberated.

The fourth section comprised of CSR and Sustainability management practices and information disclosure in different countries across Arctic Region based on literature, especially the KPMG’s International Surveys of Corporate Responsibility Reporting, 1996-2013 and the Global and EU’s profile and assessment on demands for minerals are also included. This part contains the mining and mineral development in Sweden -the case study of Jokkmokk (Kallak North) Iron Mines in the light of the most relevant Swedish legal frameworks and policies for mining and mineral development; as well as assessment of its economic, social, and environmental impacts. Once more, the impact assessment is based on the perspectives obtained from varied literatures and findings from the EIA statement based on the study report of Kallak North Iron Mines are also discussed. In the fifth section, the results and analysis part include the views and opinions of the interviewee respondents and analysis of the case study in the context of the perceived environmental, socio-economic impacts of JIM. The handling of CSR and Sustainability issues, as well as perceptions and vision of the future development of the area is well presented. Furthermore, different Causal Loop Diagram (CLD) developed for illustrating the interaction and consequences of impacts of the JIM Project operations is also employed and included. Brief analysis of the impacts in relation to the JIM operations is also presented. In section six, the discussion part comprises typical environmental impacts of the JIM and various perceptions generated in the context of impacts, issues like the need for managing CSR and sustainability and information disclosure; key stakeholders’ identification and engagement, the future perspectives and challenges of Jokkmokk municipality. The last section contains the conclusion and recommendations for all corporations and extractive industries in general, Beowulf Mining Plc.(JIMAB) in Sweden in particular.
2. Methodological Approach

A case study as a research method that arises out of the need to realize difficult social phenomena allows for an in-depth examinations of complete and meaningful characteristics of factual events. This includes tangible events of course of existence of individual, administrative practices relating to knowledge incorporation and decision-making processes, management of change in the residential areas, relations among countries, and industries at peak growth stage (Yin, 2003). A case study can be qualitative, quantitative or a combination of both and also argue that one can be sure to consider the fundamental principle of mixed research by thoughtfully and strategically mixing or uniting both of these two research methods.

Since the aim of the study that has been discussed above touches a wide-ranging issues, a diversified and numerous source of information and data are required and a case study approach need to be employed. For this particular case various case study methodologies have been presented. For example, (Yin, 2003) presents various types of case studies methodology to be used in order to ensure that the research questions are approached from different angles. Ultimately, the research methods with distinctive characteristics, notably explanatory, descriptive and exploratory may have primary importance in this case. This is because the case study methodology is one of the most important and advantageous research methodologies of clarifying and characterizing multifaceted issues like the issues of mining and mineral development in the context of CSR and sustainable development. Besides the application of this research methodology aids in collecting wide range information which are vitally important for the case study and analysis based on the research questions cited above, which are calling for more of explanatory and descriptive study (ibid, 2003).

The descriptive study is employed for the background relating to the first two research questions based on literature and the KPMG’s survey as there are quantitative data which are requiring statistical techniques used to summarize the information for the secondary data collected and analyzed. In addition to the varied documents that are reviewed and this study also required primary data like interviews which were made to collect data on the JIM projects which required the exploratory methods. Causal Loop Diagram (CLD) is also constructed for illustrating the economic, social, and environmental impacts of the JIM project operations in relation with the need for regulation and governance with the perspective of explanatory research aiming at understanding and analyzing the causal relations among important variables in the context of the mining activities. The CLD also demonstrates about how different effects of the activities and their consequences are dynamically interrelated within the conceptual model in the context of CSR and sustainability planning towards achieving long-term consequential benefits for the stakeholders and the environment prepared and presented as one major important tool in this thesis.

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2.1 Methods for Data Collection, Interpretation and Analysis

2.1.1 Literature Review

The project thesis based on comprehensive review of the literature including the legal frameworks and policies for mining and mineral development in Sweden, and review of an EIA of the Jokkmokk (Kallak) Iron Mines. As well as the literature studies on the paradigms of corporate social responsibility (CSR) and sustainable development as these are important and comprehensive tools and key policy requirements in addressing the environmental and social impact related issues. Furthermore, as the literature study necessitating the identification, analysis and understanding of the critical issues in mining industries and the case study of Jokkmokk Iron Mines based on the two theoretical frameworks, (CSR) and sustainable development are considered to be necessary as major techniques in this project thesis, which in turn supplemented by interviews of the most pertinent stakeholders.

2.2 Interviews

As interview is one of the most important sources of case study information, it is employed in this thesis just to acquire insight and primary information with regards to the Jokkmokk Iron Mines Projects case. The interviews were used to compare different opinions, viewpoints, interest and concerns of the stakeholders and perceive how they want to use the land and the natural environment or compare or contrast through comprehensive valuation of the negative impacts with the positive legacies that the JIM Projects provide, by considering concepts like, for example, the triple bottom line of sustainable development and corporate social and environmental responsibility, ethics and legitimacy. With this purpose in mind, the stakeholders who are considered strategically important and deliberated to have relevance to this research study are contacted; however, only few of them who are listed below were willing to respond. Eventually, I had the opportunity to meet only three of the respondents and interviewed them.

And hence, three different interviews with an authority and expert, NGOs/civil societies at county and local levels and with an anonymous professional representing the society and the local people have been deliberated. Such query method has been conducted by using adapted semi-structured questions (see Appendix2.2) for the purpose of survey and project thesis, which are considered to be pertinent with a focus of collecting data that may be valuable and agreeable in the context of mining operations at high latitude and Jokkmokk Iron Mines in Sweden.

The first person is an expert and prominent professor at the Luleå University of Technology. The interviewee respondent is a supporter of Governments’ policy both at national and regional level. And the other one is working for an EU Project (Ninet) at Jokkmokk and the Jokkmokk Municipality. He is also an expert in sustainable development and environmental strategist working as part time worker for the Jokkmokk Municipality. The third interviewee respondent is an anonymous person from Luleå. This man seems to have the intention to support the society at large, especially the communities around Jokkmokk and local people, Saami. As to my understanding and analysis of the results of their opinions and perspectives during the interview, these three people are assumed to represent the various stakeholders groups: the public authorities, the NGOs and Municipality, the community and local people respectively.
The three respondents were:

1. Björn Öhlander, Professor, Holder of a Chair, at the Department of Civil, Environmental and Natural Resources Engineering, Luleå University of Technology, mining expert.
2. Wolfgang Mehl, Project Manager at EU Project (Ninets) and part time worker as Environmental Strategist at Jokkmokk municipality, environmental strategist and sustainable development expert.
3. An anonymous interviewee respondent (man) who is a resident of Luleå, Norrbotten.

In actual fact I had no opportunity to meet and make an interview with people from the mining company side. However, I have taken note of the media report\(^6\) regarding this case and an interview given by Clive Sinclair-Poulton, the Chairman of Beowulf Mining Plc., with regards to the Jokkmokk (Kallak) Iron Mines AB (JIMAB). The case of opposing NGOs and local activists and local people who protested against the company as has been taken from different media reports and included in this study.

2.2 System Analysis: CLD construction

In the context of System analysis, three different Causal Loop Diagram (CLD), are constructed to demonstrate the dynamic effects and consequences of mining activities, and to visualize and support the overall discussion of the Jokkmokk (Kallak) Iron Mines project case. The objective of the CLD in this project thesis is to demonstrate definite outlines of the social, economic, and environmental implications of present activities in the mining and mineral development and their regulations and governance. It is also intended to introduce a more appropriate economic, legal, ethical framework for mining industry from the CSR and sustainable development perspective. This in turn raises the significance of underpinning the organizational and economic capacities of the locality, county and nations concern to ensure that they are in a situation where to regulate, to put into effect and if needed. As well as to propose precautionary and corrective actions through anticipating, mitigating and proactively managing the impacts of mining operations in the context of JIM, as appropriate internal EIA practices.

2.3 Data Collection, Handling and Analysis

In order to deal with the problem of establishing the construct credibility and reliability of the case study evidence and collect data three different principals have been used. The first principle is dealing with the use of multiple source of evidence such as interview as mentioned above, examining documents, archival records, etc. as a significant support of case study data collection as opposed to single source of evidence. One other good principle is relating to the way of managing dataset through arranging in an orderly manner and recording the facts or information collected for case studies in the form of data, article, report, book, etc. The last principle to be followed is to increasing the reliability of information in the case study and maintaining a sequential proof presented (Yin, 2003).

And hence, important data for the case study of Jokkmokk (Kallak North) Iron Mines is also collected and selected from sources like the Sweden’ National Statistics data bases (Statistiska Centralbyrån databaser) online publications; as well as the Geological Survey of Sweden (SGU) and the Marketline Industry Profile, Sweden metals & mining industry and the Ruoutevare & Kallak Iron Ore Projects - Conceptual Study for Beowulf plc, Raw Materials Group and other sources.

\(^6\) Clive Sinclair-Poulton from Beowulf Mining says he's very excited about the prospects. (http://www.youtube.com/watch?v=ZM7w93L0w)
3. Theoretical Background for Corporate Social Responsibility and Sustainable Development, as well as Impacts from Mining in Arctic Region

3.1 Corporate Social Responsibility (CSR) - Synopsis

The concept, understanding and practices of CSR differ across countries depending on the political, cultural and socio-economic norms and traditional differences of the countries and companies. In this sense, Roome (2005) discusses by referring to different business scholars that CSR as a concept has been liable to growing debates. He refers to Friedman (1962) who advocated that the concern of business firms and their leadership need to focus on maintaining and enhancing the shareholder value oriented to the existing legislative requirements. Notwithstanding, Roome cited as opposed to Freidman, different prominent business scholars like Ansoff (1979), Carroll (1989), Freeman and Gilbert (1988) and Sethi (1975) who have proposed that corporations need to have concentrate on duties concerning the wider groups of stakeholders. Thus, all of these business critics except Friedman agree upon the idea that businesses need to be committed towards facing the requirements of the rule that is put in place. However, companies willingly need to be accountable to the society by assuming that the obligation is expected to go farther away from the delimiting rule of laws (ibid, 2005).

The CSR is requiring the following three distinct aspects which should be borne in mind: primarily, agenda (the variety of practices, measures and proposals that come under the term CSR). Secondly, understanding (what we understand by CSR-and the various terms associated with it, and therefore, what business model is proposed and what role enterprise is considered to play in society; and this part will be discussed below in the following sections. The last one is vision (what a project for society CSR conforms to). The third aspect, vision has a very important part to play in the development of CSR which could be seriously tackled through linking it to corporate vision and vision for society. This vision also creates an opportunity for corporates to ask themselves about what they want to do in the future and what it means for them to do it. Otherwise, there is a danger that CSR will become a pure speculative bubble, a piece of rhetorical, ideological and-needless to say-advertising speculation (Lozano et al.2008).

3.1.1 Definitions of CSR

CSR Definitions by Various Theoreticians and Business Critics

Due to the uncertain characteristics of CSR requiring multifaceted approaches, it has been variously defined without having a universally accepted definition. Even today, we find different definitions for CSR. There are also differences in understanding and practices and management of CSR. The notion that we are familiar with today as CSR has an extensive and diversified history which goes back to the time of the industrial revolution. However, Lindgreen et al.(2009) by referring to (Bowens,1953) debates that the notion of CSR originated from the special form of actions which companies undertake based on the free will of the owners worldwide and takes shape in the 1950s, pertaining to business responsibility. Archie Carroll (999) also noted that the concepts and practices of the CSR proliferate in the 1960s and really became popular in the early 1970s. Ultimately, CSR has been variously presented in literature and defined in a multitude of ways around the world. While originating in the United States CSR is now endorsed and actively promoted by key global institutions such as the United Nations (UN), the Organization for Economic Cooperation and Development (OECD) and others.
When considering one of the definitions proposed prior to 1999, for example, Carroll (1979) defines CSR as “social responsibility of business encompasses the economic, legal, ethical and discretionary expectations that society has of organizations at a given point of time”.

Idowu (2009) also refer to the definition which goes with the conception of Elkington (1997) of triple bottom line (TBL). According to Elkington, the ‘triple bottom line’ as a notion proposes that companies have three bottom line, namely financial, social and environmental denoted as three-fold entity commonly called the three Ps: Profit People, Planet. Thus, TBL deals with the economic values, as well as the company's people and planet account. It can also be used as appropriate tool that enables various business sectors to evaluate their CSR related practices and behaviours against TBL (ibid, 2009).

(Warhurst et al, 2000) also defines that CSR is “The internalization by the company of the social and environmental effects of its operations through proactive pollution prevention and social impact assessment so that harm is anticipated and avoided and benefits are optimized. It is also suggested that corporate social responsibility contributes to social justice in the work place as well as human rights and development within the host countries of the operation” (Idowu, 2009).

Furthermore, Idowu (2009) by referring to scholars like Moon (2004) states that “CSR is a difficult concept to pin down into a simple definition since it overlaps with other concepts such as corporate citizenship, sustainable business, environmental responsibility, the triple point line, social and environmental accountability, business ethics, and corporate accountability”. However, all these terms speak to some basic notions a business role providing some “good” to the society in the form of jobs, growth, philanthropy, law abidance, environmental stewardship, rights protection, and other expectations. Most of prominent academicians, researchers and authors in this field including the above cited authors argue that CSR still has been variously defined without having a universally accepted definition. According to ( Dahlsrud, 2008), the recent definitions of CSR involve five key aspects comprising of certain dimensions such as environmental, social, economic, stakeholders and voluntariness (Appendix 1.3).

Though there is an emerging consensus definition that many NGOs and businesses can agree upon, they may disagree on the details in practice. The central point of agreement resolves round the importance of business practices that ensure sustainable development for society. The economic, social, and environmental dimensions are considered to be entities or major issues that need appropriate solution, while voluntariness has something to do with the nature of the action that should be implemented. The remaining component, stakeholder as one of the most important dimension of CSR will be defined and discussed in the later chapter of this thesis.

The Definitions of CSR by Global Institutions

The international organization like the World Business Council for Sustainable Development (WBCSD) (1999) also defines CSR as “it is the ethical behavior of a company towards society, management acting responsibility in its relationship with other stakeholders who have a legitimate interest in the business, and it is the commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large”.

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The European Union (EU) (2001) defines CSR in a wide-ranging manner as “a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis” \(^8\). The definition of the EU Green Paper comprises all of the five major aspects with which businesses use to evaluate their performance against the sustainability components like economic, social, and environmental, as well as the stakeholders and voluntariness.

### 3.1.2 Debates behind CSR Theories and Perspectives

Most critics of CSR agree that, in principle, modern corporations are required to behave in responsible manner towards society and environment. CSR agrees with the assertion that businesses have to engage themselves in activities outside the goal of making money. As well as complying with the existing laws enabling the enhancement of the social and environmental sustainability of the area in which they operate. In effect, CSR has become a strongly debatable topic in a sense that whether CSR offers a tangible advantage to a company or not. This is because CSR is questionable in terms of generating revenue for business sectors. One main reason for this is that a different perception of what the CSR involves is also different, which in turn proposes that there are variations in terms of models of CSR (Idowu, 2009).

In the contrary, Friedman (1962, 1970), stresses that profit maximization is what most business enterprises aspire for as an end result. Consequently, companies are required to utilize their resources and engage in activities which have responsibilities owed by them to society. Such activities are good for societies as far as they are oriented towards increasing their profits without violating the accepted norms of competition. In this completion participants are allowed to play their games openly and freely in contrary to deceptive or dishonest actions (Ibid, 2009).

Figure 1: Elkington’s triple bottom line view on CSR. Source: http://www.chess-llc.com/TBL.aspx

As denoted above, Elkington’s (1997) notion of triple bottom line debates that it is oriented towards creating values entailing to economy, society and environment. The created values in which corporations are required to engage in activities that are economically profitable; as well as useful and agreeable for the community and life of people and the natural environment. CSR in in this case considered to consist of three main components: social, environmental and financial responsibility. Today, the triple bottom line -view is perhaps the most dominant theory in the field of CSR (see Figure1).

Furthermore, in the context of a business firm, Carroll and Buchholtz (2003) proposed a fourfold idea of social accountability. They debate that the proposed responsibility, which can be expressed as a pyramid of Corporate Social Responsibility comprises of four obligations, as shown in Figure 2. According to (Carroll 1991), this entity includes economic, legal, ethical and philanthropic responsibilities. The economic responsibility has something to do with making profit, or creating more benefits for the company. The economic responsibility forms the basis for a company’s responsibility, which enables the firm to focus on the other

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categories. The legal responsibility entails to obey the laws and regulations. The ethical responsibility demands to do what is a factual, rational and realistic at all time. These responsibilities refer to the activities that are ethically prescribed by the society even if they are not categorized as laws. The last one, philanthropic responsibility is about to be a good corporate citizen. This responsibility is appreciated by the society and the stakeholders, but not expected.

Figure 2: Carroll’s pyramid on corporate social responsibility (Carroll, 1991). Source: Archie B. Carroll “Pyramid of corporate social responsibility”.

All of the above models/approaches of CSR suggest that increased profitability is one of social values in which any business sector is aiming at achieving as its ultimate goal. All of the CSR critics and business scholars except Friedman (1962, 1970), have come to an agreement that seeking mere profit should not be the crucial objective of CSR. CSR encompasses a wide array of additional valuable activities that can create fertile ground for the better quality of life, stakeholders, societies, and the environment. There are still vices and virtues concerning the company’s responsibility so that to see full-fledged and improved business activities. Such businesses are beneficial for the society and environment as these require meeting challenges and are assumed to be long-term initiatives. The major challenge of CSR is, therefore, harnessing the potentials of business while at the same time containing corporate irresponsibility.

In the context of business practices question could be raised about what CSR provides as there are a number of values to be considered regardless of the notions proclaimed by groups debating on CSR like Friedman and other business critics discussed above. The major values which CSR offers to a company may not be seen as concrete as possible which can be measured in financial values. Nevertheless, the fundamental values are portrayed in the form of positive image and enhanced business reputation.

Other values may be ascribed to retention of good personnel and superior management process. The creation of positive image of the company through integrating the CSR principles in business is assumed to have positive effect on sales, which in turn on the quality of interaction with business partners and consultation with pertinent stakeholders’ representatives. The realization of CSR policy into practice also creates fertile ground which

An encouraging business culture that relies on improved and shared values towards creating measurable business opportunities and reverence and proper treatment of the workforce, permits companies to fascinate top class employees from top class universities. This in turn attract motivated and committed workforce and increase their loyalty and motivation. CSR can also have benefits in terms of increased customer loyalty and allows companies to form beneficial strategic alliances, as well as to get sympathetic media at critical times. Furthermore, incorporating the environmental and social issues in business planning and decision-making creates a better condition for the company to further develop its prospects and make itself ready for the long-lasting business development (Idowu and Filho 2009; ibid, 2013).

Just as social benefits are achieved through CSR, CSR may also bring about environmental benefits through incorporating important tools for environment and standards pertaining to environmental management into corporate planning and decision-making. As CSR is a multidimensional and multifaceted issue, companies’ existence and the presence of various individuals or groups called stakeholders with mutual and legitimate interest is not only interrelated but interdependent. Besides, CSR tends to provide with an increasingly high benefit for the relevant stakeholders of any company apart from the generation of revenue and economic benefits. The notion of stakeholder is taken to be the basis for recognizing the relationship between business and society, and therefore, it can be considered as part and parcel of the CSR.

3.1.3 Stakeholder Theory Definitions and Perspectives of Stakeholders

Freeman (1994) as the first business scholar who introduced the stakeholder theory briefly stated a stakeholder as "any individual or group who can affect or is affected by the actions, decisions, policies, practices, or goals of the organization." From this statement one can understand that stakeholders may have impact on the organizational management and decision-making processes of the business firm. It is just as they can be conversely subjected to varied impacts of the business organization in a way as to maintain the mutual concern, interest and expectations between them.

Donaldson & Preston (1995) describes stakeholders as “persons or groups with legitimate interests in procedural and/or substantive aspects of corporate activity”. According to Clarkson (1995), stakeholders are defined as “persons or groups that have, or claim, ownership, rights, or interests in a corporation and its activities, past present, or future”. Likewise, the terms “primary” and “secondary” are often used to refer to groups of stakeholders with deferring relationships or closeness to the business. In this sense, Clarkson states primary stakeholders as groups “without whose continuing participation the corporation cannot survive”. Primary stakeholders include investor’s suppliers, customers, employees, governments, political groups, trade associations, and communities. Secondary stakeholder groups are defined as “those who influence or affect, or are influenced or affected by, the corporation, but they are not engaged in transactions with the corporation and are not essential for its survival.” These include competitors and the media.

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Another important way of classifying stakeholder was presented by Wheeler and Sillanpää (1997) in such a way as primary and secondary and social and nonsocial stakeholders, as it is proposed and shown in the table 1.

| Primary social stakeholders                  | Shareholders and investors |
|                                            | Employees and managers     |
|                                            | Customers                  |
|                                            | Local communities          |
|                                            | Supplies and other business partners |
| Secondary social stakeholders              | Government and regulators  |
|                                            | Civic institutions         |
|                                            | Social pressure groups     |
|                                            | Media and academic commentators |
|                                            | Trade bodies               |
|                                            | Competitors                |
| Primary nonsocial stakeholders             | The natural environment    |
|                                            | Future generations         |
|                                            | Nonhuman species           |
| Secondary nonsocial stakeholders           | Environmental pressure groups |
|                                            | Animal welfare organizations |

Table1: Primary and secondary and social and nonsocial stakeholders by Wheeler and Sillanpää(1997).

Primary stakeholders are powerful as they have direct stake in the business and its accomplishment. Secondary social stakeholders have no a direct stake in the business and their stake is more depictive of public or distinct interest, though they are tremendously powerful, especially in damaging character and public status. Though the primary and secondary system of categorization is useful, it is more effective to consider the importance of stakeholder groups as they have connection with the social responsibility issues such as social and environmental sustainability the company is addressing.

Furthermore, Carroll & Buchholtz (2003) categorize stakeholders into two broad groups as external and internal stakeholders. The external stakeholders include government, consumers, and community members. The government needs to be treated first as it should stand for the public interest. Member of the community is also crucial as they have to do with a wide-range of issues like the natural environment, business giving (corporate philanthropy) and plant closings (including downsizing). One other crucial group of external stakeholders is social activists who are considered to be part of this categorization. The second group of stakeholder is comprised of internal stakeholders. These groups include business owners and investors and employers belong to the principal group.

Donaldson and Preston (1995) also asserts that stakeholder theory is adhering to management or managers in general terms as it explains and provides normative (ethical) guidedance for business management in relation to the structure, day-to-day operations and profitability of the recognized company. According to (Dickson et al.2009), stakeholders have an important role in exerting pressure on corporations through initiating CSR practices, while others create fertile ground for CSR to mature and become more socially responsible in their products, services, and processes.
3.2 Theoretical Background on Sustainable Development

3.2.1 Sustainable Development and its Universal Definition

Lafferty and Langhelle, (1999) by referring to Stenseth (1992) and Jacobs (1995) explain that the term ‘sustainable development’ has its origin in German forestry in the eighteen and nineteen centuries. Even though sustainable development has got varied definitions, the definition that is in the Report of Brundtland Commission on Environment and Development is the universally accepted and cited one. Accordingly, it is stated in the Report, Our Common Future, that sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (UNCED, 1987:43).

This statement of sustainable development identifies intra-generational and intergenerational equity and justice with regards to fair right to the natural resources of the planet Earth (UNEP, 2006). Sustainable development, therefore, aimed at realizing the development of humanity by taking the present and future generations in to account. Furthermore, it is well depicted in the 1992 Rio Declaration 4 that “In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.” 11 Sustainable development is defined and applied generally, as the combination of mutually supporting components of the triple bottom line such as economic, social development and the protection of environment12 (WSSD, 2002). However, politics and culture are also key dimensions of sustainable development, which influence the interactions of and between the three pillars. Sustainable developments as it is introduced in different international instruments, it needs effective governance system. This also ensures the integration of the sustainable development principles into policies and legal requirements of a country in such a way as to indicate the interdependence of the present and the future generations.

3.2.2 Sustainable Development as Global Corporate Agenda

Even if sustainable development was considered to be a global concept for treating issues at macro-level instead of corporate-based activities, it requires corporations have important role to play. As a result, the problem appears when it comes to the development of processes and implementation of strategies by corporations towards meeting the challenges of sustainable development at corporate level. According to Wheeler et al. (2003, p. 17) sustainability in terms of corporate agenda is simply stated as “an ideal toward which society and business can continually strive, the way we strive is by creating value, creating outcomes that are consistent with the ideal of sustainability along social, environmental and economic dimensions”13

Gomes (2013) discusses by referring to (Barbieri et al. 2010 and Elkington, 2001) that the participation of businesses on the cause for sustainable development has initially started due to external pressures. The pressures are in response to the criticisms and objections of the government and organized communities who blamed the companies for the processes of social and environmental degradation that affected the planet. And recently this matter has become a factor of business competitiveness, which can be a source of differentiation or

qualification to remain on the market. Besides, the dimensions of economic, social and environmental sustainability, are inherent in the concept of sustainable business and are represented based on the Triple Bottom Line. This in turn should be integrated so that natural resources are used in a manner not detrimental to future generations in the environmental sphere, reducing the impacts of industrial processes. In the economic perspective, it is necessary to preserve the company’s profitability and not compromise its economic development. And finally, in the social sphere, which includes the issue of social justice, the ultimate goal is the development of a more just world, through relationships with all stakeholders (ibid, 2013).

Nonetheless, Welford (1996) argues that TNCs are found to have similar negative environmental consequences and several of the critical paths of development of the developed countries are undoubtedly not conducted in a sustainable way. Non-renewable resources are being depleted, while renewable resources such as soil, water and the atmosphere are being degraded. Several comparative studies prove that there is no continuous economic growth that conforms to environment sustainability. Once more, it has been revealed that the existing corporate environmental management did not attain its priority objective oriented towards reaching a situation where firms are operating in the direction that is consistent with the concept of sustainable development. It is becoming more difficult to ensure a balance in achieving these goals of sustainability in countries where there is a big gap in socio-economic development.

3.2.3 Corporate Sustainability in Mining Sector

Fonseca et al.(2013) states that there have been a lot of growth in terms of measures of mining sustainability during the past two decades, though such initiatives never alter the negative perception that the public have on the mining industry. Besides, the problem with reputational risk is prevailing due to the fact that mining is engaged in finite resources. The challenges pertaining to impacts of mineral exploitation on the society and environment could be easily tackled through implementing various sustainability concepts and management tools like eco-efficiency, investment and involvement in community partnerships, etc. Nevertheless the public consensus about how to proceed with the exploitation of finite resource like minerals in compliance with sustainability principles remained inadequate. Lots of NGOs have argued that “mining is inherently unsustainable” and that “(. . .) a truly sustainable global society will take fewer minerals from the earth each year” (Young and Septoff, 2006, p.1). Organizations such as the International Council on Mining and Metals (ICMM,2012a,p. 5) also agrees that the endeavor in mining venture should be encouraged as far as this sector go hand in hand with the principles of sustainable development. Fonseca et. al (2013) also cited what has been presented by the ICMM that mining like any other human endeavor need to be conducted in a manner that the activity alongside its outputs obtained tend to deliver positive and lasing welfares to the society and sustainability of ecosystems.

Furthermore, Fleury& Davies (2012) declared that environmental stress, social concerns, economic progress, and their governance are deemed to be the four most crucial spheres of influence in the context of sustainability. According to the Mining, Minerals and Sustainable Development (MMSD) project, therefore, Sustainable Development tends to integrate these four mentioned spheres in way as to achieve its goal and defines as “maximizing the contribution to the well-being of the current generation in a way that ensures an equitable distribution of costs and benefits without reducing the potential for future generations to meet their own needs.”
(WCED, 1987:45-46) declares that: “As for non-renewable resources, like fossil fuels and minerals, their use reduces the stock available for future generations. (...) With minerals and fossil fuels, the rate of depletion and the emphasis on recycling and economy of use should be calibrated to ensure that the resource does not run out before acceptable substitutes are available. Sustainable development requires that the rate of depletion of non-renewable resources should foreclose as few future options as possible”.

Hilson & Murck (2000) states that the Brundtland Commission’s condition has failed to shape a framework for an effective sustainability when considering sustainability in mining sector (…) this is due to the fact that sustainable mineral extraction is paradoxical as the agenda for an operating mine is not directly relevant to the sustainability principle. Besides, it is borne in mind of the management that the main objectives of mining investment aims at profit maximization founded on a temporary venture of extraction and processing mineral. Gomes et. al,(2013) also cited (Aligleri et al., 2009) that a company that is committed to the future and to sustainability is one that has a business model that assesses the consequences and impacts of their actions and includes social and environmental aspects in its financial outlook.

The economic growth, however, cannot occur without mining and mineral raw materials. The rational conclusion is that exploitation of mineral resources is not the problem, but in its “green” and modern execution, represents the key to sustainable development (Pohl, 2011). Thus, the impacts of mining on environment and society, as it is an issue of major concern, it requires important consideration and especial emphasis; as well as observations at all levels of government administrations, with a view to ensuring sustainable solution. This has to be prior to the approval of license for the mining companies and the decisions that could be made by the relevant governments of the environmentally sensitive Arctic region, business and society in particular.

3.3 Background on the Environmental and Social Impacts from Mining in Arctic Region

Mining as one of the earliest activities of man is supposed to be fundamental to the development and continuation of civilization. Unlike any other activities, mining takes place where minerals are present and economically viable. It is also considered to be a robber economy, in that a mineral deposit is a finite source and comes to an end when the deposit is exhausted (Bell, 1998). This activity also brings about positive and negative impacts across the major economic, social, environmental and political frontier. However, mining and mineral processing and beneficiation have an impact on the environment as opposed to the legacies that it leaves for the society. Some of the negative impacts include severe land degradation, impacts occurring outside mining site, issues related to extremely visual, well recognized, continuing and debatable community dislocation and possible health and safety issues. Mining sites can be subjected to two forms of impacts initiated from either being proximate to center of population (with possible air and water, as well as visual noise pollution) or faraway in space (more challenging to inspect) (Worrall et al, 2009). Mining activities occur everywhere around the world including the Arctic regions which seeks further emphasis.

The Arctic is situated in the northernmost point on the earth with latitude 60 degrees north, namely Geographic North Pole. It covers a total area of about 14,056 million square kilometers. It comprises the Arctic Ocean, northern Alaska, Greenland, the Barents Sea, the Beaufort Sea, Hudson Bay and the tributaries of rivers and water bodies originating from nearby areas. Portion of the region belong to either of the following eight countries, namely Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States (UNEP, 2006). The Arctic region, particularly northern Europe is one of the future most promising regions in terms of substantial mining and mineral working. Apart from other development activities which have challenges, mining has developed as one of the principal industries in
the region. Nevertheless, on the one hand, people are afraid of irremediable changes and harmful effects on variety of nature with distinct features or qualities. They are also anxious about the impacts of mines on the power giving continuation of nature based means of support in the region. On the other hand, the mining business is assumed to have positive effect in terms of job opportunity and sustaining of regional development. And hence, in the context of mining development investment the inclusion of sustainability is of supreme importance. In case of threats created by the mining industry it is essential to develop the regional operating environment to put in place appropriate regulatory and governance methods.

3.3.1 Arctic’s Environmental Sensitivity to Mining and Common Identified Impacts

The Arctic region is environmentally sensitive and characterized by a mass of dry and cold air. It has long darkness throughout the winter months and continuous daylight during summer time. Permafrost is occurring in this environment over much of the land, and seasonal sea ice covering a wide-ranging area of the ocean. When considering the Arctic climatic conditions, it is changeable from locality to locality and from time to time of the year. However, periodic temperature disparity along the coast may be reduced due to a regulating effect of the ocean. It is also reported that inland areas is supposed to experience annual ranges in temperature to the extent of 100°C. The existence of such extreme variability of climate and weather in turn may have effect on Arctic species in the sense that they should be ready for a wide variety of conditions, or should wait quite a lot of years to grow or reproduce slowly. Arctic as environmentally sensitive region comprised of sceneries of lands and seas. Highlands and lowlands, marshes and deserts, deep basins and shallow continental shelves, waterways and ponds, remote islands and vast landforms are among the landscapes and seascapes found in Arctic (AMAP, 2002).

Typically, on the other hand, it is suggests that the stresses on mountain ecosystems are manifold due to the fact that they are environmentally sensitive and fragile. They are also marked by their sharp slants, high elevation and other characteristics. In many areas of the world including Arctic, human development activities, such as wind turbines and hydroelectric dams, mining industrial activity are escalating. Thus, all these activities are increasingly encroaching in Arctic including on reindeer-grazing lands in northern Sweden. The activities of extractive industries, especially mining development are threatening to destroy mountains as they are supposed to be supplying source of a number of minerals that are in high demand. This means that ease of access of minerals on some mountainous areas has brought about to heavy mining activities. This in turn resulted in environmental degradation and pollution of different water bodies such as large lakes and waters of many nearby rivers (UNEP, 2006; Minority Rights Group International, 2012).

Ultimately, initiating a mineral deposit may constitute destructive actions which result in removal of productive soil and plant life, which in turn leads to adverse effects on the biodiversity and habitat and wildlife in the locality. When considering the natural environments with a high value exhibited at highland Arctic region, the consequence will be more severe as this environment is more fragile than lower latitude. Also, mining operation may involve destruction of the landscape, degradation of the visual environment, disturbance of water courses and air pollution, destruction of forest lands, damage to wildlife. In addition to noise, dust, truck traffic, public nuisance, all of which are normally associated with various stages of mining operation, though these effects are more pronounced while a mine is active.

3.3.2 Potential Environmental Impacts Related to Mining in the Arctic Region

Although Arctic is bestowed with large renewable and non-renewable resources including mineral reserves of various sorts, potential impacts are inevitable as mining is continuing to be one of the primary areas up on which the future feasible economy of the Arctic relies. For example, Russia produces quite a lot of metals such as copper, gold, nickel, platinum, tin, as well as other minerals like apatite and diamonds. Canadian mining corporations extracts minerals like copper, gold, lead, zinc, and diamonds. The United States also produces minerals like lead and zinc in Alaska at the Red Dog Mine. So that this mine is capable of producing about two-thirds of US zinc supply, and the exploitation of gold is being carried out in quite a lot of areas (ACIA, 2005). In Europe, the Fennoscandian shield being a mineral-rich area outspread through Sweden is deemed to be an important mineral supply for the future. According to a study conducted in connection with mining development and the European industrial future, the mines for minerals, deposits of ores, and significant mineral occurrences for large-scale metal mining industry across the Fennoscandian region are estimated to be more than 1600 in number (Mining industry in Finland and Sweden -Bothnian Green, 2012).

Apart from other economic activities, the extractive industry, especially mining industry has been the cause for potential damage on environment and intrusions on the socio-economic activities around the world including the high land Arctic region. As well as public health and safety hazards with the objectives of exploitation mineral resources. When it comes to the potential impacts of mining, one typical example is presented by (Marshall, 1982) in connection with the Canadian mining in the sense that reviewing of the past experience and practices of the extractive sector often exhibited a lack of concern for the environment. Most multinational corporations (MNCs) especially mining industries were found to be environmentally damaging. In the late 1960’s, the mining industry, due to the nature of its extraction, processing and waste disposal practices, were undoubtedly subject to some of the most vigorous condemnation for causing highly perceptible environmental degradation. The mining operations have been envisaged by environmentalists and conservationists as causing serious and enduring adverse impacts on the environment.

It is also discussed that certain characteristics and factors like location, topography, and climate also influence the type and dispersal of environmental contaminants apart from the existence of mines’ uniqueness in terms of the physical, chemical, radiological nature of ores and waste materials extractions and processing methods. The variability of these factors hinders any attempt to estimate potential impacts from the extractive industry as a whole or even to operations involved in the extraction and processing of identical materials. For example, the uniqueness of the high Arctic and Sub-arctic region is that is related to its topography, ecosystem and climatic conditions makes it highly environmentally sensitive. It is well presented in (AMAP, 2002) that unlike the lower altitude regions, as means of transportation in which agents like air, water, and ice are used to convey various contaminant from other areas to Arctic, or from Arctic to other part of the world, and within the Arctic itself. In the context of its physical, biological and cultural features, the Arctic is different from the lower altitude regions, with major implication for entrained contaminants (Ibid, 1982).

Different literatures also prove that comparatively the environmental factors that are subjected to the most serious degradations in connection with mining and mineral development. These include the atmosphere, water, land, and biological resources and ecosystems. The resources of those areas and communities where mining venture is carried out in general and mountainous and high latitude regions like the Arctic Circle in particular. In the proceeding
sub-sections, the main impacts on landscape, and water system, air quality, biodiversity and habitat loss are highlighted as follows.

3.3.3 Impacts of Mining on Landscape through Waste Disposal

Mining and mineral exploitation will result in visible alteration of the landscape. Temporarily, it induces disturbance of vast areas of lands and the ecosystems (e.g., by clearing the site) at higher latitude in and around the indigenous communities. The disturbance may cause relocation of water courses, drainage of wetlands, removing soil, laying new roads. Permanently leaves ‘scars’ in the landscapes; new water courses, ponds, and lakes; lowering, tilting or raising the land surface; landfills, waste rock tips; pit lakes, settling ponds, tailing dams (Pohl, 2011). In this regard, one can imagine that during the project life time huge mass of land, regolith and soil might be demolished by every mining project. As well as the crushed debris will be dumped into the surrounding, this in turn will create problem on the ground and surface water. The disturbance due to mining and waste disposal and deposited tailings may cause adverse impacts on the nearby water bodies and it’s the natural environment including flora and fauna.

The Environmental Science for Social Change (ESSC) (2003) by referring to (Da Rosa, 1997; Sampat, 2003) explains that two factors determine the quantity of waste produced. One of the factors is the kind of mineral to be mined, and the other one is the magnitude of the mine. The production of iron ore, copper, and gold are the cause for generation much of the waste. Precious metals like gold and silver are classified as metals with the highest waste product as their ores are generating wastes amounting to more than 99 percent. When considering iron mining, it is generating waste to the extent of 60 percent, and thus it is classified as a metal with relatively less waste. Releasing a huge mass of waste of this kind constitutes enormous tasks for the extractive firms. This in turn may considerably have an effect on the environment. Cecil (2010), for example, claims that mining involves environmental degradation, and results in large amounts of mine waste. From this case one can understand that mining is contributing largely to the total waste production of the United States.

One typical example of environmental impacts associated with the major mining operation at the high latitude of Arctic regions may include corporations like the Teck Alaska Incorporated Red Dog Mine (USA). Teck Alaska Incorporated Red Dog Mine is the biggest open-pit zinc mine in the world. It produces 10% of the world’s zinc and extracts some of the highest concentrate ore available (20.5% metal). The expense of operation in such remote and environmentally challenging locations means that the return on the investment for the company must be large. This tends to result in operations that are large in scope and that draws on some of the richest reserves on earth. According to the U.S. Environmental Protection Agency, it is reported that this mine is one of the industries that are in forefront in its pollution effect in the United States. The mine is found to be primary in its impacts pertaining to the amount of toxic waste generated as it is generally over 99%. So that except for wastes obtained in the form of blasted and moved, the rest of the waste rocks from mining operations are unprocessed (The project Avalon forum, 2014).15

In the context of ordinary mining activities two major kinds of wastes that perhaps containing of sulphide minerals may be generated. The wastes to be generated are either waste rocks excavated to reach the ore and which is largely composed of granular material or small tailings produced while processing of the mineral ore. The global production of mine wastes of solid waste generated each year was estimated to be 15 000 - 20 000 million tons. The 27

countries of the European Union generate more than 670 million ton of mine waste per year. Over the last century the volume of tailings being generated has grown dramatically since ores with lower grade are mined as the demand for minerals and metals has increased and through advances in extraction and processing technology is increasing (European Commission, 2013). According to the Swedish Environmental Protection Agency’s report, in 2010, it is also discovered that more than 89 million tonnes of mining waste is produced annually; and more than half of the waste dominated by sulphidic. Thus, the many varied contaminates and wastes released to the biosphere from mining activities causes pollution and bring about continuing impacts on the health of human being, as well as and the life of flora and fauna.

3.3.4. Impacts on Water System

Mining may result in temporary and lasting impacts on the aquatic and/or hydrologic environment, which can adversely affect that water system and result in water quality deterioration. Temporarily, for example, all mines (except dredging operations) act as a well because of dewatering. The consequence is often wide draw-down cone, influencing nearby ground water, drinking water well-fields, wetlands, or springs. For example, mine dewatering can result in drinking water wells falling dry. One typical example of considerable subsidence induced because of mine dewatering is the Kiruna underground iron ore. This subsidence is predicted to last 100 yarer, which resulted in enforcing a relocation of Kiruna town (Pohl, 2011).

Mining activities have long been known to cause significant water quality impacts due to the involvement of varied kinds of negative impacts on the water system. Some of the typical examples of impacts which are considered to be accountable for environmental impacts on water system at high latitude include the Blaiken mine and Svärtträsk. These mines were situated in the Västerbotten County in the northern Sweden. These mining companies were previously owned by ScanMining AB before the company went bankrupt. Blaiken and Svärtträsk are known for their environmental problems and the mines’ toxic water leaks into the river Juktån. Blacken appeared as a gold mine when it was commenced. Later on it started leaking hazardous waste of heavy metal requiring a cost of a million SEK each month for implementing cleanup process of the toxic waste. It was estimated that a minimum of 200 million SEK is required for its complete remediation of the harmful waste. When the ScanMining AB withdrew the Blaiken mine in 2007 had saved only 3 million SEK for entire remediation of the pollution from the toxic substance. The same problem happens in Svärtträsk as Blaiken. Responsibility for the clean-up and restoration of the environment left to the Swedish government and Swedish tax payers. Besides, in the 1990s, following the discovery of groundwater pollution nearby the Kristineberg iron mine in a community close to Kallak subjected to the terrific and hardest cessation of mine process in Swedish history (Bush, 2013).

Another scandal is also emerged in northern Finland in connection with the problematic situation in the mine of Talvivaara where the Finnish government had played active role in preventing the company from going broke by taking over its shares. The cause for the trouble is that an elevated level of poisonous waste substance has been indicated in the streams nearby Kaunisvaara. These watercourses are linked to the greater Mounio River along the boundary between Finland and Sweden. The Mounio River flows into the Botnia Gulf where the seal and the Baltic small herring population are severely hit by high levels of toxic matters (Granqvist, 2014).

3.3.5 Impacts of Mining on Air Quality

Activities in mining operations can result in impacts on air environment. For example, open pit mining discharges particulate matter when overload of soil and rock is removed from the site and deposited or put back to the excavation. Particulate matter is also generated when rock is broken or blasted during the mining process. When the soil and/or vegetation are cleared up, exposing the rocks and soil to further breakdown, causing particulates to be carried by wind erosion and road traffic or through the air. Mining activities like dusting, emissions from transport, as well as emissions from other operations and explosive gases can result in serious consequences on air quality and natural environment.

Atikson et al. (2011) cited that the NMC Norilsk of Russia is one typical example responsible for environmental impacts linked to air environment at high latitude. The NMC Norilsk mines produces almost one-fifth of the world’s nickel, half of the palladium, and one-sixth of the world’s platinum (Staff report). Its impact on air environmental is equally impressive. Estimates suggest that this facility is responsible for 1% of global sulfur-dioxide emissions. Yet, recognizing that this is not sustainable, NMC has undertaken efforts to reduce the negative impacts of its operations. Atikson et. al. (2011) emphasizes further by referring to (Antonova, 2010) that the world needs these resources, but the extraction activities can be conducted so as to minimize the impacts. Embracing this more broadly, Russian Prime Minister Putin recently ordered an arctic-wide cleanup of fuel dumps and contaminated sites. One other example of accident illustrating the hazards connected with the modern activities is the Kirunavara iron mines that occurred in the 1985. This accident caused a sever impacts on air environment during when the mining operations produced high concentration of carbon monoxide (CO) to the atmosphere. It was revealed during accident people were killed due to a few minute exposures to CO and CO intoxication. The CO-concentration on the basis of room volumes and chemical properties of the explosives to be between 13, 000-14, 000 part per million (ppm). The lethal concentration regarded to be 1,000 ppm. After the critical accident in Kiruna and a similar accident in Finland, the CO-risks connected with large scale blasting in mines were investigated further, confirming that CO level of this magnitude are caused. However, the good thing is that the accidents caused to a major change in the production system and the development and introduction of new mining technology. It further illustrates a useful method for risk assessment and cause analysis that can be used to improve work systems.

3.3.6 Impacts of Mining on Biodiversity and Habitat

Due to escalating human-induced effects such as the extractive and logging industries, the biodiversity is more threatened and ecosystems and habitats are being destructed than ever before in the Arctic zone. The loss of biodiversity leads to the reduction of productivity of ecosystems. Consequently, the goods and services which nature provides are shrinking. These in turn imperil ecosystems through debilitating their ability to cope with natural calamities like for example, heavy rains and floods and landslides, storms. The human-induced disasters, such as land degradations and pollution and global warming and climate change could be intensified. As mining operations involve deforestation and clearing up of the vegetation, the biological diversity where it embodies the varied living things will be altered. Other important materials for vital essence of life of plants and animals like the genes they

comprise along with the levels of genetic and species diversity, and the ecosystems they form together with their amazing diversity, will either be changed or terminated. Such kind of operations will also cause further soil erosion by wind and rain, which in turn induces microclimate change. Thus, most environmentalists and scientists promote and support the idea that biodiversity has to be well-thought-out as a finite resource. Besides, it is impossible to replace the potential of this resource and is impossible to reproduce or duplicate it through up-to-date technologies (UNEP, 2006).

A variety of scientific studies prove that mining activities bring about the release of substances having detrimental effects like for example, toxic wastes, polychlorinated biphenyls and mercury into the Arctic environment. The recent surveys revealed that about 260 tonnes of hazardous wastes, and more than 2,000,000 liters of waste oil and fuel are produced each year by some communities. The poor waste management and disposal further pose threat to ecosystem of the Arctic region (ibid, 2006). Furthermore, the wastewater and process water, leaked fuel, waste oil, and other hydrocarbon related wastes including the water run-off from the mining site will be released into the surrounding land and into the waterways without any or partial treatment of the waste waters. This in turn, possibly may cause contamination, major pollution to the water system, as well as the destruction of its biodiversity and habitats of the Arctic and subarctic regions.

3.3.7 Impacts of Mining on Environment and Climate

The mining projects at the Arctic region are proved to be economically feasible, though the operations are supposed to cause serious debates about the Arctic among the states, indigenous people, environmental organizations and transnational companies. According to the Arctic Climate Impact Assessment (ACIA, 2004, 2005) it is emphasized that the Arctic is the globe’s barometer for environmental and climate change. In this sense, the occurrences of climate change will be felt earlier in Arctic. This in turn creates a situation that makes the rate of warming to be more enhanced than in other part of the globe. Different scientific studies revealed that some of the climate change effects perceived ahead of time in this particular environment. Thus, the climate change that is occurring in the Arctic environment in turn will bring about global effects.

In order to reduce the global implications, the mining industry has been introducing new and advanced technologies for environmental and economic motives and public policies and tighter regulations. As well as different tools and management approaches that enable them manage the impacts on the environment and communities. If we take innovative technology, the capacity for technology is faced with certain challenges related to the declining ore grades and rising total production and the resulting net positive legacies for the environment in this regard. According to (Giurco & Cooper 2012), enhancement of performance in one areas of environment only may not be implemented across all domains of impacts. They also argue by referring to (Franks et al., 2010a; Worrall et al., 2009, Bridge, 2004; Hilson, 2000) that largely impacts on the environment and local communities are linked to the existing trends of operations in the context of mining and minerals development. The extent and significance of impacts of such kind is escalating as mining development expands and ore grades decline gradually. As ore grades decline steadily a company tends to mine more ore in order to produce each tonne of metal, which in turn leads to mine productivity with lower output and increased amount of waste rock during extraction. The generated waste also brings about more greenhouse gas impacts per tonne of product and increasingly high social impositions on mining operations of both newly initiated and existing ones.

Moreover, Mudd (2010) emphasizes that one can work on the premise that the gradual decrease in ore grades leads towards thought-provoking inverse relationship between ore
grades and energy/greenhouse intensity. This relationship indicates that emissions of greenhouse gases will be one of the major challenges that the mining industry will face in the future. It is imperative to point to the challenges of climate change that caused the existing debates on how can be GHGs emissions reduced and the capacity to address climate change be strengthened through integrating various measures. This measure may guarantee an emissions outcome like emission trading systems and taxation of emissions like carbon taxes or other promising approaches. Particularly when considering the mining industry it is obvious that the challenges that are arising from various environmental constraints are found to be continuing constantly. Because ‘business as usual’ makes it difficult to meet the growing challenges as this directly deals with energy of particular sources, consumption and emissions of greenhouse gases. Clapp & Dauvergne (2011) underlines by referring to (Miller, 1995) that the MNCs have been playing significant role in depleting natural resources and bringing about pollution at global level. And hence, ‘they are the largest users of raw materials globally’ and, in the mid-1990s, the top 500 MNCs ‘generated over one-half of greenhouse gas emitted annually’. This is due to the fact that mining industry is considered to be one of the largest energy consuming sector in which an increased quantity of fossil fuel is often utilized.

3.3.8 Potential Impacts of Mining on the Indigenous People in the Arctic Region

The land uses like mechanized agriculture and forestry require more extensive land in comparison with the land cover where mining ventures occur. Although the site of economically feasible mineral reserve limits the mining companies, there are occasions where these sites overlap with sensitive areas of ecosystem and lands where indigenous people dwell. Such kind of environmental and societal disturbances happened due to the expansion of extractive industries in the Arctic region that hosts a diverse range of human settlements including the indigenous people. Apart from being the home of eight nations, it is the dwelling for the indigenous people of the Arctic include the Eskimo of Alaska, Inuit and Athapaskans of northern Canada, the Saami of Northern Fennoscandia, and the Russia’s Kola Peninsula. The total populations of indigenous and non-indigenous who reside in the portions of Arctic are approximately 3.8 million (UNEP 2006), between 2 and 4 million (ACIA, 2005). Although there is no a universally accepted definition of indigenous people by any organs of the UN, indigenous people are commonly defined as “the descendants of those who inhabited a country or a geographical region at the time when people of different cultures or ethnic origins arrived. These people are characterized by their practices unique traditions; they retain social, cultural, economic and political characteristics that are distinct from those of the dominant societies in which they live”\(^\text{19}\). And hence, these people have their own cultural and historical heritages and familiar quality of life and socio-economic activity on which they depend on. The indigenous people have also been survived for thousands of years as descendants of their former ancestors. They subsisted on the surrounding land resources and sea. Their means of survival were hunting, gathering, fishing, and reindeer herding were. In recent times they have started claiming their rights for empowerment and involvement in decision-making process in a way that affects their lands and resources, and communities. The raised issues of historical and cultural rights to lands and resources are requiring response in this rapidly changing society and the highly endangered Arctic environment (ACIA, 2005). Of these indigenous populations, the Saami population is estimated to be between 70,000 and 100,000 in the Nordic countries and in the Russian Kola Peninsula (Minority Rights Group International, 2012).

The life on the arctic is sociologically precarious because of many sociological changes as the more mechanized cultures of the South have crushed into the North. This in turn created dependency for fuel, food and other supplies and systems beyond the people’s control. An increase in dependency entails an increase in vulnerability. A mechanized society also means a society hungry for resources, bringing heavy extraction industries and their infrastructure into the North (Atkinson, et.al, 2011). However, the ecosystems and indigenous communities in this region are highly sensitive to natural and anthropogenic disturbances as it is one of the world’s global change hot-spots, as well as its uniqueness and distinctive social and ecological significance (Arctic Council, 2013). As a result of this fact and other factors extractive industries in Arctic is controversial, although oil and gas drilling as well as mining and mineral development are now receiving more and more of this investment.

Economically, life is precarious in these areas because economic options are limited. The economic activities that these indigenous people undertake reindeer herding include farming, fisheries, mining, and manufacturing. They have also made available the region to enhanced rate of petroleum extraction and metals mining at operational facilities situated throughout the North. These activities have brought about the release of harmful substances and toxic wastes into the Arctic environment. As the presence of these populations raises the need in the Arctic, in the sense that the economic needs of the populations like for example mining and mineral exploitation and the ecological needs work together in keeping the balance among them. Furthermore, as this environment is the home of several indigenous populations, they put forward an important claim for their indigenous rights instead of simple rights conceded to the states by laws (ibid, 2006).
4. CSR and Sustainable Development Issues Management Practices in Different Countries Based on Literature, and the Case Study of Jokkmokk Iron Mines in Sweden

4.1 The Global Context of CSR and Sustainable Development Management Frameworks and Standards for Corporations

4.1.1 International Frameworks for Managing and Reporting CSR and Sustainability

It was quite challenging to have a clear idea on global CSR agenda due to plentiful approaches which created confusions among crucial stakeholders. Nevertheless, the stakeholders were required to work in close alliance of CSR initiatives, and address definite aspects of the implementation of the CSR agenda. Among these global CSR aspects required for emergence of the commonly accepted CSR framework, the specific set of initiatives like codes, standards, and principles on what has to be done; management and assurance standards on how to be done; and global reporting on how to measure progress were on the forefront (Mazurkiewicz, 2003).

These international frameworks and management standards and guidelines have become one of the ways governments to strengthen and legitimize national CSR policies. They pave the way for the reception of the policies in national frame works. Once more, governments have the possibility of participating in international forums to have their say in the direction in which these principles and standards develop. The international frameworks and standards to be presented below are deemed to have positive effects on companies and enable them measure and manage their performance on sustainable basis. This in turn will enable them think seriously about a diversified issues and stakeholders having interest towards achieving increasingly effective performance and management (CESD-KAS, 2013). And hence, the most widely employed international frameworks and management principles include: the United Nations Global Compact (UNGC); The International Labour Organization (ILO); and the Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprise.

The United Nations Global Compact (UNGC) being a planned policy initiative and ethical commitment is developed to motivate the global business operations towards the implementation of policies relating to sustainable and socially responsible activities. These policies are dedicated to bring their operations and approaches together within ten internationally recognized principles in the sphere of human rights, labour, environment and anti-corruption. The UNGC is a common consensus framework based on a set of principles which adhere to the Universal Declarations of Human Rights, the ILO Declaration of Fundamental Principles of Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention against Corruption (see Appendix 1.1.).

Other important international framework includes Universal Declaration of Human Right (UDHR). These frameworks are founded on the Universal Declaration of Human Rights (UDHR) which is approved by the General Assembly of the United Nations in 1948 and on other human rights declarations, workers’ rights and environmental protection adopted at global level. As an umbrella law, the UDHR state that: human rights are privileges inherent to all human creatures and are significant principles and standard that empowers individuals to entertain their freedom while living in dignity in this planet earth. All human rights are privileges which need to be experienced by everyone, characterized by mutual relationship and dependence and not separable into parts.

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The International Labour Organization (ILO) as one of specialized agency of the United Nations is composed of conventions and recommendations with minimum standards of basic labour rights.\(^{21}\) The eight most important conventions by ILO are those relating to the Freedom of Association and Protection of the Right to organization; Collective Bargaining; Abolition of Forced labour; Equal Remuneration; Equality of Treatment; Discrimination(Employment and Occupation); Minimum Age; the Worst Form of Child Labour.

The Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprise constitutes a set of policies based on voluntariness and tends to promote corporate transparency and responsibility. As well as a policy approach precisely designed for addressing disclosure of material information. Other duties include employment relations, environmental management, corruption, competition, consumer interests, and science and technology diffusion, in coordination with the existing legislation\(^{22}\).

### 4.1.2 The International Management Standards and Guidelines

The major international standards and guidelines, and CSR codes used by Companies include: Social Accountability International 8000 (SA 8000); Assurance Standard 1000 (AA 1000); Global Reporting Initiatives (GRI); The International Organization for Standardization (ISO) Standards 14000.

Social Accountability 8000 (SA 8000) is a global standard established for managing business and company codes. Its target is to build a mutual language that enables the measurement of social compliance. This in turn seeks to encourage and support basic human right in line with human rights norms at international level and national labour laws. SA 8000 being internationally certifiable standard can be utilized in connection with certification of work-related compliance. As well as management and auditing issues and an authorized body of accreditation which certifies those companies that are seeking certification. The certification SA8000 for accreditation of social responsibility adhere to the most crucial laws like the United Nations Convention on the Right of the Child, the Universal Declaration of Human Rights, the Convention on the Elimination of All Forms of Discrimination against Women, and fourteen Conventions of the International Labor Organization\(^{23}\).

Assurance Standard 1000 (AA 1000) is known to be the first international standard designed by the Social and Ethical AccountAbility (ISEA). This standard is a systematic process of checking whether the public reporting on social, environmental and economic performance of an organization is credible and of good quality or not. AA 1000 mainly deals with issues of stakeholders’ engagement\(^{24}\). Accordingly, it has been stated by ISEA that AA 1000 “provides a forward-looking approach that indicates how able an organization is to carry out stated policies and goals, as well as to meet future standards and expectations.” AA 1000 necessitating a third party assurance audit and is founded on three principles such as materiality, completeness, and responsiveness. Materiality is dealing with the extent to which the information related to sustainability performance for stakeholders is incorporated. Completeness seeks to focus on the physical aspects of its sustainability performance and about assessing the degree to which the reporting organization can identify and understand


its performance. Responsiveness is concerned with the assessment of whether the expectations of stakeholders are met by the reporting organization.

The Global Reporting Initiatives (GRI) is another standard development of the United Nations to standardize sustainability reporting procedures and report on sustainable development and to provide guidelines for disclosing economic, environmental, as well as social and management performance26. And hence, GRI being a multi-stakeholder governed institution has three major innovations. The first one is a multi-stakeholder process in which all major stakeholders are brought together for developing reporting guidelines. The second one has to do with process institutionalization in which consecutive generations of the guidelines are produced. The last one is concerned with creating an organization to serve as an agent of the guidelines and of the process. According to (Ioannou & Serafeim 2014), more than 6,000 companies around the world were issuing sustainability reports based on GRI Reporting Framework in 201327.

The International Organization for Standardization (ISO) Standards 14000 is the global framework consisting of a family of standards for environmental management system (EMS). The standard consisting of several family of standards that assists companies to better protect the environment where they are operating and guide them towards continually improve their activities in compliance with the prevailing laws and regulations pertaining to the natural resources. This means that the standard is devised to help companies manage their environmental responsibilities through internalization of the environmental effects of their operations. By proactively prevent the pollution and reduce the associated environmental impacts, the company can make progress towards achieving a long-term development in its business activity. These in turn enable companies anticipate and mitigate the damage involved and enhance the positive effects and benefits on the environment. The European Union’s Eco Management and Audit Scheme (EMAS) comprise ISO14000 series of standards as part of the scheme.

4.1.3 The European Context of CSR Reference Framework

The Green Paper developed by the European Commission in 2001 to provide guidance on important issues such as human resource management, health and safety at work, human rights, global environmental concerns, and social auditing. The Green Paper on CSR also served as a basis for encouraging corporate responsibility and underpinning transparency practices in EU countries. The European Commission (2001a) defines CSR as “a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis.” The way the commission tackles this issue underlines two aspects: the ‘what’ and the ‘how’. As far as the ‘what’ is concerned, it emphasizes the fact that business firms should be more effortful towards fulfilling their duties in terms of social and environmental boundaries; and as for the ‘how’; it stresses the voluntary nature of those commitments. However, it is believed that the two dominant debates about the CSR (the ‘what’ and the ‘how’) are unsolvable. And hence, exploring the ‘why’ which can only be expressed through business model and the social model that provide the framework for the CSR debate is required (Lozano et.al, 2008).

4.2 Managing CSR and Sustainable Development Issues in Different Countries

4.2.1 The Global and National Context of CSR: Factors and Themes on the CSR Agenda

As CSR is a globally induced idea in which TNCs are the driving force behind CSR phenomena, and giving CSR a distinctly transnational and global dynamics. The national dynamics has its own significance as it dictates about how CSR can be put into effect in a different manner across distinct social, economic, cultural, legal and political contexts. That is why the development and performance of CSR across countries is different in kind as it depends on the political, cultural and socio-economic norms and traditional differences of the countries and companies. Roome (2005) by referring to Fox, et al. (2002) point out the most commonly deliberated and highly valued as key themes on the CSR agenda which usually adopted by most governments. These include: “minimum standards, the public policy role of business, good corporate governance, socially responsible investment, philanthropy and community development, stakeholder engagement, production and consumption, certificate and management systems, transparency and reporting, and international CSR guidelines”.

Besides, most agree that there are certain important components of CSR to be highlighted as important issues in reaction to stakeholders. These include: functioning environmental protection, social protection of employees and their interests which requires attention; the attitudes towards environmental protection and humane right conditions in the supply chain and consumer protection which requires addressing; as well as collaboration with government and local communities. They are further classified into two broad categories, notably: decent working conditions and environmental protection, compliance to international standards of best practices. This means that it includes the improvement in the production process, improvement in addressing social and environmental externalities produced by the processes. The second categories include: charitable giving (philanthropy), sponsorship, support for non-profit organizations, contributions to community development.

With this perspective in mind, one can better understand and analyze what marked differences could be perceived and determined by comparing the CSR agendas in the globalized world. When it comes to CSR practices there is also a noticeable variance among countries and companies and between different sectors in terms of their impacts. For example, sectors like the extractive industries are expected to have comparatively greater social and environmental impacts than other industries. As the result the extractive industries have been facing reactions from stronger pressure groups and activists and other stakeholders like the local people. Nevertheless, the managerial commitments of companies and the way in which they are responding to CSR practices significantly differ across dissimilar sectors (ibid 2005).

Roome (2005) suggest that it is essential to identify the main elements that the format converge in the approach taken to CSR in each country prior to discussing the agenda of CSR and its management or how CSR and sustainable development issues can be handled. These elements include: the political and institutional, and social structures; the political style and processes; the intensity of attitude to voluntariness, in contrary to the recognition of regulation and state control; description of the duty of firms in society at local and national level; the role of situation of NGOs and citizens’ associations in society; characters of educational system; societal expectation of leaders; and historical traditions. These identified elements make it necessary for the companies and countries to fully cognize the requirement to fashion their peculiar ways to CSR.

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4.2.2 The European and American CSR Policies and Practices and the Explicit and Implicit Context

Although the notion of CSR policies and practices arises first and predominately from the United States, the concept of CSR has gained unprecedented momentum in Europe. CSR is considered as arrays of concepts which overlap with such concepts as “business ethics, corporate philanthropy, corporate citizenship, sustainability and environmental accountability. The overall concept of CSR is presumed to be dynamic, contestable, and complex. CSR as a concept is implanted in the social, political, economic and institutional context” (Matten and Moon, 2004). They are also referring Archie Carroll’s conceptualization of CSR incorporated in several of literature in the area of business and management. CSR is also assumed as a paradigm relevant to a four-fold entity which adheres to the relationship between business and society. And hence, in this fourfold idea of social responsibilities of a business organization, the idea of voluntary act by corporations is presumed to be a central debate in CSR.

There have been major factors that can explain the differences between the development of CSR in the U.S. and the developed countries in Europe. Some of the factors that distinguish the US from European countries are activities of private charitable corporations, building partnerships across sectors. One other factor is the active support and participation of civil society and NGOs in exerting pressure on companies in order to act responsibly concerning environment and society. As CSR reporting is a non-mandatory corporate policy initiative is originated in the US, the American corporations have been far ahead in the field of CSR. In the European context, such kind of practices related to CSR policy started out quite recently and still disseminated fact across countries. Corporations in most countries of Europe are approving CSR policies similarly; however, when it comes to the need for definition and addressing in understanding a European perspective to the CSR policy having variation adhering to the level of political governance. That is why the European Communities determined to publish the Green Paper in 2001 and to define CSR by involving the five major components. Nevertheless, the European made by the EC in 2001 does not infer that CSR was formerly nonexistent (Matten & Moon, 2005).

The understanding and implementation of CSR in different regions or countries can be seen by proposing a theoretical framework for CSR. In this regard, Matten and Moon (2005) undertook cross country analysis and developed a theoretical framework for understanding CSR in Europe on the basis of the idea of social governance, comparing the European context with the American one. One important method for understanding of the comparative differences between United States and Europe CSR can be discussed by putting forward a distinction between “explicit” and “implicit” CSR policies (see table 2). According to (ibid, 2005), explicit CSR stands for “corporate policies that lead companies to assume responsibility for some interests of society. Explicit CSR would normally involve voluntary, self-interest driven policies, programs and strategies of corporations to address issues perceived by the company and/or its stakeholders as part of their social responsibility”.

<table>
<thead>
<tr>
<th>Explicit CSR in US</th>
<th>Implicit CSR in Europe</th>
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<tbody>
<tr>
<td>Describes corporate activities that assume responsibility for the interests of society</td>
<td>Describes corporations’ role within the wider formal and informal institutions for society’s interests and concerns</td>
</tr>
<tr>
<td>Consists of voluntary corporate policies, programs, and strategies</td>
<td>Consists of values, norms, and rules that result in (often codified and mandatory) requirements for corporations</td>
</tr>
<tr>
<td>Incentives and opportunities are motivated by the perceived expectations of different stakeholders of the corporation</td>
<td>Motivated by the societal consensus on the legitimate expectations of the roles and contributions of all major groups in society, including corporations</td>
</tr>
</tbody>
</table>

Table 2: Explicit and Implicit CSR Compared. Source: Matten & Moon, 2008
On the other hand, implicit CSR refer to “a country’s formal and informal institutions through which the corporations’ responsibility for society’s interests are agreed and assigned to corporations. Implicit CSR normally consist of values, norms and rules, which result in (mostly) mandatory requirements for corporations to address issues, which social, political and economic interests consider a proper and reasonable obligation upon corporate actors”. The essential aspects of CSR issues in the USA are handled by explicit corporate policies, whereas CSR issues are dealt with in the form of implicit corporate policy frameworks which are grounded on strong institutions in Europe (ibid, 2005).

**4.2.3 Managing CSR Worldwide and the Comparison of CSR Agenda by Country**

According to Lozano et al. (2008), the CSR debate emphasizes the point that, in a globalized world, there are lots of elements that are competing. Products, services and processes are among the most competing elements apart from various forms of competing models related to business, management and national governance. In the context of CSR, therefore, one has to keep in mind that existence of non-coincident approximations, however, the United States and Europe are the center of attention as opposed to the rest of the world. In the USA, the key issues concerning CSR centered on stakeholders management (especially those with most power to influence or pressure). The setting up of relation with the community, and business accomplishment aimed at society, which are frequently described as CSR because they are carried out by companies, rather than because they have an effect on the most essential part of business of the firm. Also, in Europe CSR inclined to be connected progressively to an overall perception of the company. This in turn gives more consideration to all the processes in which it is committed and higher sensitivity towards the political and social circumstance in which it functions.

And hence, one can consider that the most innovative and coherent initiatives and measures being taken in CSR, as well as based on the perspectives of CSR and cultural factors that influence CSR in national and global context. One can also agree and state that eventually, CSR should be managed and manageable. However, at the very start if we had to sum up the matter on how to manage or handle CSR, we should identify the issues among a wide set of issues. The issues need to focus on the following questions such as: what topics, what processes, and how it is integrated into management. Prior to dealing with the question what topics, we need to work from the premise that CSR is not a preset model applicable to just any organization. The most important thing is precisely that each company must build its own vision of its responsibilities towards society and translate it into concrete policy and practices. However, when it comes to building this model, it is fundamental to work from the basis of a minimum understanding of the areas roughly encompassed by CSR. Thus, we work with a model developed by (Vilanova 2003) that divides CSR into six main areas or aspects: Vision and mission, stakeholders, work, market, environment, accountability (ibid, 2008).

Lozano et al. (2008) says that recognizing the areas or aspects involved in CSR does not clarify its complexity and dynamic nature. To complete the CSR analysis model one has to consider that it is essential to develop strategies, which can be turned into concrete policies, and on this basis produce new practices. Even if the identification of topics of CSR is important, it considers only the static perspective. The second important point to be deliberated is CSR as processes. CSR is, therefore, perceived primarily as a vital process having its own pathway in which the direction is well-maintained and the enduring responsibility that gives its structure is considered to be the second most important thing. This understanding of CSR as a learning process is what has become, for many companies, a factor for innovation. This also has given rise to new forms of organization, new products or improvements in the quality of their management. In this process there are three elements to be considered as vitally important.
First, CSR only make a difference if it outlines the business strategy and policies which should be incorporated into clearly articulated values that are lived as opposed to those values that are professed ones or formulated-within in the company. Consequently, the most important thing is to nurture the corporate identity and a trajectory that shows a certain amount of consistent coherence in everything that is done. Secondly, constitute a vision of how relationships are carried on with the various actors/stakeholders involved in business actively, which includes the management structure and processes of the company itself. Lastly, companies should be responsible and convey the essential information about their performance. This means that companies need to develop a model of responsibility and means of disclosing and disseminating information that is dealing with both financial and nonfinancial aspects like the social and environmental ones based on Elkington’s ‘the triple bottom line’ notion (ibid, 2008).

When considering CSR as a process, Lozano et al. (2008) notes that there are several dimensions or variables to be considered for initiatives in managing CSR based on the model that divides CSR into main areas of CSR developed by (Vilanova 2003). The ‘explicit’ CSR is the first aspect that validates and objectivizes things like codes, reports, statements, organizational structures, etc. The second one is the ‘negative’ aspects of CSR are other dimensions that deal with any management areas which emphasizes certain activities that are considered to be inappropriate and need to be excluded from any business dealings by setting minimum requirements such as sanctions, prohibitions, rules of procedures, etc. The third one is the ‘tacit’ CSR that emphasizes the intangible elements of CSR like for example the company’s history, culture, governance, etc. The fourth one is ‘propositional’ aspects which are dealing with approaches capable of facilitating innovation, improving and shaping of CSR management. Among these aspects, the explicit and negative components have greater influence and more susceptible to regulation than the latter two components. Nevertheless, regulations cannot cover all of the identified areas of CSR development, or all of their aspects. And hence, from the point of view of political actions, the propositional aspects need to be promoted as they are supposed to create improvements and innovation initiatives in managing CSR.

In conclusion, Roome(2005), suggest that an intellectually demanding analysis is of these matters is essential in connection with the evaluation and comparison of country based CSR agenda; however, the following opening annotations bring to light a number of points.

1. “The CSR agenda has developed over time in line with changing social, political, and environmental context of countries.
2. The CSR agenda impacts companies in different sectors in different ways.
3. As the CSR agenda is discretionary for companies so the issues they choose to respond to as part of their approach of CSR are often specific to the company context, its values or business principles, technologies, resources, capabilities, products and markets.
4. Leading companies in CSR adopt a more or less generic approach to managing CSR issues,
5. Notwithstanding the variation between companies and sectors the CSR agenda is conceived differently in different countries in Europe and internationally.
6. The governance structure of companies, together with company’s national context appears to influence the way that CSR issues are managed as well as the set of issues that are managed”.

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4.3 CSR and Sustainability Issues Management Practices and Information Disclosure in the Arctic Region

4.3.1 CSR & Sustainability Management and Reporting in the United States of America

CSR as an idea originated and developed in the United States of America in response to the accelerated advances of private enterprise, which occurred in 1970s. In the early 20th century, the growth of capitalism further promoted the creation of large corporations and industrialists who were illegitimately amassing wealth, which in turn led to the appearances of opposition groups who were against the unfair corporate competition. With this perspective in mind, the US government enacted various legislations on issues of protection of abour, provision of the public with necessities, and services of financial institutions during the 19th and in the early twentieth centuries (Mullerat, 2013). Tschopp (2005) by referring to (Hess, 2001) states that several important legislations were enacted and adopted in the late 1960s and early 1970s in the United States to address major societal and environmental concerns. Some of the most important legislation enacted and adopted in order to address the issues relating to control of pollution and hazardous waste include, namely “Federal Water Pollution Control Act (The Clean Water Act) Amendments of 1972”. Other legislations are related to working conditions and the workplaces include “The Occupational Safety and Health Act of 1970, The Equal Employment Opportunity Act of 1972”. Others include laws on consumer protection, specifically “The Consumer Product Safety Act, and The Federal Hazardous Substances Act”. Accordingly, corporations were expected to comply with the legal requirements established by both of the individual state and federal government.

Often, CSR issues may be practically handled by different sectors in the USA. One of the most important kinds of CSR practice is government-led activity as it is directly linked to the federal government. In this way the government would have been expressing its interest in companies increasing their socially responsible practices. However, apart from setting policies, as the economy is market-driven the government has no active role in influencing corporations through its policies. The same holds true for CSR activities. For example, the report of Government Accountability Office revealed that there was no extensive endorsement at federal level pertaining to CSR activities. The main cause is that CSR is not mandated by the government due to the existence of several definitions of CSR. One other problem is that the trouble they had faced with in involving all stakeholders to decide on what they were seeking (GAO, 2005).

Despite the lack of federal CSR mandate, there were several of global activities in the area of CSR and programs that were requiring the involvement of government. Nevertheless, the US GAO reported that there were about 12 federal organizations that employed more than 50 programs, policies, and activities. All of these global corporate social responsibility-related activities were requiring the informal role of the federal government (GAO, 2005).

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Among these activities, the US EPA had been authorized to lead the prevalent CSR issue of climate change. The US government’s activities related to global CSR were categorized in four significant roles as can be seen in figure 3. These were acknowledged by the World Bank and presented as endorsement, facilitating, partnering, or mandating corporate responsibility activities in spite of the lack of any specific federal regulation (GAO Report, 2005). As discussed above, a more explicit CSR policy of corporations is prevailing in the United States as the stage for corporate accountability derives from ethically based decision-making. When we look at the trends and motives of the corporations in the light of triple bottom line, the economic aspect is dominant over the other two dimensions of sustainable development. The idea of CSR is also ambiguous and differently understood when considering the divergent beliefs which mainly concentrated on the financial profits of CSR initiatives. It is also marked by the erratic CSR practices of companies which deliberately neglect the legislations. In the US, companies are also disregarding the governing rules and social obligations for the communities in contrary to the ethical aspects of CSR. One good explanation of erratic approach of CSR can be demonstrated from the perspective that the simple disparity between the CSR practices in single section of the firm against the absence of “responsibility, accountability and integrity” in another. What distinguishes the development of CSR in the US from that in European countries is that the active roles of NGOs/civil society in pressing those companies to act responsibly towards the society and environment. Thus, CSR has shown significant growth in the US over the past decade as the result of the NGOs engagement and other positive motives like provision of awards and recognition, stakeholder meeting, and other pressures (Griffin & Vivari, 2009).

As being one major aspects of CSR, stakeholders’ convergence in the US has been found to be a vital tool for addressing real societal issues. Among these groups the government, private foundations, collaboration across sectors, NGOs and civil societies, as well as other stakeholder pressures could have played active roles concerning social responsibility. Nevertheless, one main reason that makes distinctive the progress of CSR in the U.S. from that of Europe is that the socially responsible investment (SRI) funds in persuading companies to act responsibly. The involvement of the relevant stakeholders like company, government and society at various levels have, therefore, contributed a lot in moving the corporate responsibility agenda forward.

Cecil (2010) by referring different scholars like (Gray, R., and Bebbington, J. 2001) and (Owen, 2004) stakeholders are becoming perceptive and well informed and realized that the nonfinancial issues are decisive as this relates to responsibility for all corporations. This is due to the fact that stakeholders are in need of recognizing a corporation’s wellbeing through disclosure of its financial and nonfinancial information as a whole. To speed up this process forward in the US legislation would have a role. The rising business and skillful influence over social and environmental reporting contributed to relations in the context of public requirements and a need to regulate for threat and improve image and status through efficient stakeholder management.

Furthermore, several of the corporations started communicating through reporting their economic actions of their corporations on the society and environment. Corporation’s performance disclosure is presented in their yearly reports. And hence, a large number of business firms decided up on issuing reports in connection with CSR report as separate and standalone reports. The main causes for the existence of several different kinds and names

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of reports is that there is no one centralized organization which regulates CSR reporting in the US. Some of them include “environmental reports, social reports, climate change reports, carbon reports, triple bottom line reports and sustainability reports” among others. Nevertheless, CSR report is an independently different from the annual report and introduces nonfinancial data of both quantitative and qualitative. Since 2005 a significant growth is noticed in the publication of CR reports, from 32 percent in the 2005 survey to 74 percent in 2008, and then raised to 86 percent in 2013 (KPMG International, 2005-2013).

In spite of the absence of coercive rules or directives in the US calling for corporations to reveal, a large number of companies have been continually issuing CSR reports for various reasons. Cecil (2010) by referring to (Dawkins and Ngunjiri, 2008) states that three main ideas have been proposed for the increasing trend of CSR reporting. The first one is signaling theory recognized to managing the perceptions of key stakeholders and the second one is impression management theory attributed to conveying the corporation’s values to the public; and the last one is most widely cited reason is legitimacy theory, which establishes that the corporation’s actions are in accord with social norms (Campbell, Craven, and Shrives, 2003) 31. It is, therefore, discovered that there is an increasingly high demand for this nonfinancial information alongside corporations’ drives for disclosure.

4.3.2 Managing and Communicating CSR and Sustainability Issues in Finland

Finland is well-known by its culture of deep-rooted agreement and collaboration among varied political, economic and social parties. This in turn is characterized by its corporatism and an elevated belief in institutions particularly the government and political system, the legal system, and the media and corporations more than European do on average. Moreover, it appears that the Finnish public is anxious about a number of issues related to the behavior of business firms both at home and in foreign countries. In Finland, the treatment of employees is taken to be the central factor of responsible business affair. These public concerns have been fulfilled with the appearance of CSR. However, CSR is relatively recent in Finland as far as formal knowledge, adoption and documentation is concerned; and hence, it has become more popular during the very last few years. The Finnish term used to referee to CSR is yrtiysten yhteiskunnallinen vastuu. It reflects the idea that CSR has social reflections, but also includes environmental issues (Korhonen and Seppala, 2005; Lozano et al.2008).

Furthermore, it is noted that Finish companies involve in CSR because the senior executives have had an increasingly high interest and conviction about CSR. The other motivated factor for the companies to get involved in CSR is that the perceived expectations of various stakeholders. Most companies also have confidence in that CSR is capable of fulfilling the expectations of the stakeholder groups (ibid, 2005). In Finland, a conceptual difference is perceived in the context of CSR. Nevertheless, the most commonly preferred meaning of CSR presented in conformity with the legal requirements. With the legislations and policies that are central to all operations of the company perspective in mind, they are carrying out their responsibilities based on key issues like environment and basic features of globalization. This in turn conforms to the inherited way of thinking, culture, and a long-established tradition of virtuous corporate practices of Finns (Panapanaan & Linnanen, 2009).

In the context of CSR the Finnish government primarily played an active role as the primary provider of a legal framework which constitutes business operations. It also played great roles in establishing policies or guidelines, as well some fundamental sections of laws related to occupation, financial state report, public programme providing for economic security and

social welfare, and environmental protection are identified related to CSR. The government had other missions to accomplish like disseminating information to stakeholders and encouraging dialogues among these groups, and supporting small and medium companies. It had also played a role of coordination in connection with MONIKA, the EU green paper and OECD guidelines. Other duties include representations like in forums, conferences, international dialogues of treaties. It had also involved in study and inquiry relating to the application of OECD guidelines, ethnically based investment, as well as consultation in in CSR-related issues. The Finnish government considers that CSR is an inherent aspect of employment in the public sector, which is in order to fulfill its mission, and need to work towards ensuring social responsibility. The multi-stakeholders dialogue is channeled through three bodies, in which the government participates as can be seen in table 3.

Key Development in the field of CSR in Finland and Chronology:

- Finish Business and Society Network (2000): the Network creates partnership between companies, the public sector, citizens and consumers in order to establish socially and economically sustainable development.
- MONIKA (2001): As a forum on CSR is comprised of the Committee on International Investment and Multinational Enterprises to promote the OECD guidelines among SMEs. The established committee is to promote social responsibility as it comprises professionals from several Finnish ministries, business and trade unions and NGOs.
- Finish Ethical Forum (2001): the forum is to promote interaction between business, consumers and organizations and offer them a place to discuss questions of business ethics. It also aims at bringing together different point of view, exchange thoughts and via cooperation find new ways to evolve CSR and raise awareness of the different expectations and objectives of its members.

| Table 3: Key Development in the field of CSR in Finland and Chronology. Source: Lozano et al: Governments and Social Responsibility, 2008. |

As far as the Finnish global company is concerned, on the one hand, values as one main factor of supreme importance exert influence over CSR. On the other hand, CSR has to have wide acceptance by the senior executives as it is perceived by them that CSR plays a role in enhancing connection with significant stakeholders and bring about economic advantages over a long period of time. Companies’ success is, therefore, relating to responsibility and long-term profitability as these are assumed to be interdependent. In contrast, the preceding experimentation and investigations demonstrated that CSR seems a matter of reputation by means of which corporations get a permit to commence operation.

According to Kourula (2010), CSR by its very nature and tradition is found to be generally implicit. As there has not been a strong philanthropic tradition and preferably the state is presumed to assume responsibility for social issues. Although the progress is slow and uneven a more realistic explicit type of CSR has been appeared recently as a new movement in Finland. In this sense, CSR has shown great move from single influences in the context of management activities and functions adhering to quality and environment leaning towards a wide-ranging sustainability perception. This makes a good drive for Finnish companies to confirm a progress in CSR because it has been perceived as a potential competitive advantage.

When looking at the KPMG’s survey of CSR reporting trends by the Finnish companies grew to 44 percent mark in 2008 from 32 percent in 2005, and then CR reporting grew fast to 85 percent in 2011. And yet a slight regression was shown to 81 percent in the 2013 survey (KPMG International, 2005-2013). As far as the global CSR management frameworks are concerned, the majority of Finnish companies are preferably employing UNGC, ILO and OECD guidelines. Besides, they are using various ISO standards and GRI Guidelines as international management standards for social and environmental accountability. Nevertheless, recently additional issues such as fair employment practices and ethical consumption are also given especial emphasis (CSR Europe, 2010). In general terms, however, progressive research may be required with regards the case of the overall CSR management related to stakeholders. The key stakeholders that the management required to
involve include workers and colleagues in the context of supply chains, and others like consumers, as well as the public sectors, NGOs and the community.

4.3.3 Managing and Communicating CSR and Sustainability Issues in Sweden

Widell et al. (2009) by referring to (Berglund-Lake, & Dahlin, 1999) state that the Swedish corporations started practicing some form of CSR between the middle seventeen century and middle nineteen century. And hence, the idea of CSR has extensive history and Sweden is viewed as a pioneer within the field. According to Widell et al.(2009), it is also noted that among the entity, the economic responsibility had undermined all other corporate responsibilities during the twenty century. However, the Swedish discourse on CSR emerged during the last twenty years because the stakeholders continue to urge corporations to take on greater responsibility in the contribution they make to societies. Further, the field of CSR has ripened and taken an improved from within and outside the country ensuing diverse events of ups and downs.

Sweden has no common definition for CSR. This in turn resulted in ambiguity and indefinability in the meaning of CSR, and thus led to various ways of addressing other related CSR issues. These indefinite characters of CSR have also brought about varying interpretation of its meaning. Nowadays, corporations that are involved in disclosing information and implementing CSR are uniformly dispersed throughout all industries in Sweden. Similar approaches is seen when it comes to disseminating CSR information. The businesses’ motive behind social responsibility is pertaining to profitability, enhancing corporate brand and reputation. As well as attracting skilled employees, though the Swedish CSR may have various forms when it comes to its actual practice (ibid, 2009). Nevertheless, today, the term CSR is supposed to be synonymous with sustainable business practice, and is employed to describe the work companies’ do in the sense that they are conveying a positive impact on the economy, the environment, and the society.

The Swedish government has played vital roles in making legislative requirements. By introducing and promulgating rules and regulations, the government establishes a yardstick for activities pertaining to corporate business. In 2001, the government introduced an imitative at national level, namely the Swedish Partnership for Global Responsibility (Globalt Ansvar) in favor of the UN Global Compact. The main purpose for the initiative was just to encourage business firms to contribute towards enhanced social responsibility (ibid, 2009). The function of the Partnership is to create clear understanding to CSR related public argumentation, place emphasis on good practices and create a fertile ground for all performers engage in collaborative learning. Among some of the initiatives carried out include seminars, meetings, studies, and support to member companies, training courses, and a forum for presenting viewpoints (Lozano et. al, 2008; ibid, 2009).

Lozano et. al, 2008) states that Sweden has placed particular emphasis on the importance of key policy issues that requires all companies of a certain size to disclose their information pertaining to environmental impacts involved due to emissions and utilizations of synthetic chemicals in their annual financial statement since 1999. Besides, in the year 2000, Sweden enacted the Public Pension Fund Act that brought about an annual business plan with guidelines describing the environmental and ethical concern in investment decision (Lozano et. al, 2008). At national level, great roles have been played by the Government in advancement of CSR (see table 4).
In the past few decades, it is cited that several Swedish corporations have taken the initiatives in disclosing information concerning social and environmental accountability on their websites. They have started publishing their CSR reports in which the social responsibility is considered to be central issue of the time. Their works also have been presented at conferences and seminars concerning CSR. In this manner, the Swedish corporations have been reacting to various interest groups who are determined to influence business firms improve their social and environmental concerns. Besides, they have been trying to work in cooperation with pressure groups as they are playing great role in shaping CSR into a notion that is giving important consideration to their fellow citizens by communicating their social concerns through disclosing their CSR activities.

When considering the trends of CR reporting in Sweden, a regular progress is shown starting from 2005 to 2013. This is due to the fact that there were new reporting companies to bring their total N100 and which makes Sweden to show fast growth from 20 percent in 2005 to 79 percent in 2013 within eight years’ time (KPMG International, 2005-2013). This might be due to the increasing interest of companies having intensified responsible and responsive effort towards the society at large and natural environment. Besides, the global reporting frameworks employed by companies in Sweden like for example the UNGC, OECD and others, most companies that are owned by state were accustomed to introduce their reports on sustainability in conformity with the GRI guidelines. In order to constitute an integrated reporting basis for evaluation and follow up, all of these CSR frameworks and standards alongside other financial activities of a business such as financial statements that will be issued at annual level, reports that will be published provisionally, and the report for corporate leadership are also of supreme importance. Even if more research is mandatory in the field of CSR management, one can conclude that the way in which business firms in Sweden elucidate CSR into practices may be determined by the sociopolitical perception held by the highest ranking executives.

### 4.4 The Global Profile and Assessment on Demand for Minerals

#### 4.4.1 Assessment on the Global and EU’s Profile of Metals and Mining Industry

The Global mineral production, trade and consumption trend has shown unbalanced demand and supply. The global demand for metals and minerals is more rapidly growing than its supply. Today, the amount of natural resources extracted and used by humans is deemed to be around 50% than only 30 years ago. This means that almost 60 billion tonnes of raw materials were extracted per year. Such trend of growing resource extraction is the cause for environmental problems and social problems. When we compare the resource consumption of the Western world, notably, the North America and Europe, the average consumption rate varies and is about 90 kg and 45 kg of resources per day respectively. Other reports show that

<table>
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<th>Chronology of key policies in Sweden</th>
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<td>- Information on Environmental Impact (1999): Companies over a certain size required to include information on their environmental impacts in their annual sheet.</td>
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<td>- Establishment of National Contact Point on CSR (2000): Minister for Foreign Affairs, companies and trade unions.</td>
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<td>- National Pension Fund (2000): the business plan describes the environmental and ethical consideration that must be taken into consideration in the investment.</td>
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the average consumption of an inhabitant of the Western world for minerals and metals in their lifetime is almost 1,700 ton (about 25 tons per year). According to the ICMM report, in 2010 the value of world mineral production had shown increase by nearly four times as compared to the 2002 official values reported. One major factor contributing for the increase is that exceptional trends of economic growth in few Asian countries like China and India. Additional drivers for the growth include further developing economies and the severe rise in commodity prices worldwide. It is also predicted that China’s demand for metals is continuously increasing in the coming 10 years. With regards to iron production and consumption, China will be leading as one of the largest importer and consumer of more than 50% of the global iron.

One scientific study reveals that since the middle of the 1980s the EU’s total need for materials has been continuously growing by nearly 50 tonnes a year per head of the population. This in turn has brought about significant increase on the weight of imports and adverse impacts on their environment. Beowulf Mining Plc.( 2014) by referring to BHP Billiton stated that to satisfy Europe’s increasing need for metals about 130 million tonnes of iron ore need to be imported from outside of Europe. This means that Europe needs more metals and minerals. EU’s import need is so high in that it consumes about 25% to 30% of the world’s metal production. Nevertheless, EU metal production accounts for a mere 3% of world metal production (Sweden Mineral & Mining Sector Investment and Business Guide, 2013).

Thus, Europe has a huge trade deficit for metallic minerals, and needs to utilize more of its own resources to decrease this dependence. If the production and consumption rate continues in the trends indicated in the above paragraphs in a sense as to meet the ever increasing demand for minerals, global mining in general and mining in the controversial areas of Arctic in particular may face sustainability challenges. The challenges are in trying to keep on balancing between economic benefits, social wellbeing of the people and environmental integrity; as well as satisfy the long-term global need for raw material supply and the constantly increasing total material requirements.

With regards to the development of the economic activities of the European Union, the European minerals and metals mining sector has been playing its own role. In this respect, the sector has created several job opportunities for about 190,000 people, which in turn generates revenue to the extent of 5 billion euros. In conformity to the development of this sector (MacDonald 2005) explains that the ‘sustainable development’ is the main principle to be used for achieving success in terms of mineral and mining in the sense that it plays significant role in the creation of jobs and economic development. Notwithstanding some sustainability indicators exhibit that as global mining, especially mining and mineral development in Arctic increases the weight of its impacts on environment and society also escalates simultaneously.

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33 Swedish Geological Survey (2011): “Unbalanced demand and supply” In Information- and Consultation Meeting of the JIM AB regarding Test Mining at the Kallak Deposit, Jokkmokk, Sweden, 26 April 2012
consideration and especial emphasis. As well as observations at all levels of government administrations, with a view to ensuring sustainable solution prior to the approval of license for the mining companies and the decisions that could be made by the pertinent governments of all nations including States of the Arctic region.

4.4.2 Assessment on the Swedish Metal and Mining Industry Profile and its Vision

The Government Offices of Sweden (2013) by referring to the Fraser Institute, Survey of Mining Companies 2011/2012 ranking the investment climate for establishing exploration and mining activities in 93 regions and countries, Sweden was in the top ten. It is also revealed that largely EU’s iron ore mining takes place in Northern Sweden where 16 active ore mines discovered in at the end of 2012. Apart from the sulphide ore and gold which are mined on other locations, iron ore is mined in Kiirunavaara, Malmberget, Dannemora and Pajala. The Kiruna iron mine is the largest underground iron ore mine in the world.

The SGU’s data reveals that, there could be as many as 30 metal mines in Sweden in 2020 compared to the current 16 active ones. By 2030, there may be as many as 50 mines in operation in Sweden. In 2020, ore production is anticipated to amount to 120 million tonnes, which is 75 percent more than in 2011, when production was 68 million tonnes. SGU estimates that production in 2030 will amount to 150 million tonnes. The percentage of iron ore is expected to rise from 46 percent in 2011 to 50 percent in 2020 but then fall back to 44 percent in 2030.37

4.4.3 The Swedish Metals and Mining Industry’s Contribution to the National Economy

Sweden possesses untapped material resources for a strongly growing mining industry. The industry’s share of Swedish GDP has increased during the 2000s and in 2010 amounted to 0.85 percent. In fixed prices, this share corresponds to just over SEK 30 billion (EUR 3.6 billion) (Government Offices of Sweden, 2013).

In 2010, the Swedish mining and minerals sector had created job opportunities for 8,400 people and it is a very important sector for Swedish exports. Its share of Swedish commodity exports has risen consistently since 1998 and in 2011 amounted to 12 percent. In absolute terms, the mining and minerals industry supplies export products with a value of just over SEK 145 billion (EUR 17.5 billion). According to the Swedish Mining Association, the mining industry has great vision towards increasing its production by a factor of three and creation of new jobs for 50,000 people by 2025. With this perspective in mind, the mining sector is expected to contribute for 3–5% of GDP by 2025 and provision of industrial investment over 20%. According to the Swedish Employment Service projections, the mining sector may create additional jobs for about 5,000 people in the following years. It is also projected that the mining industry will have to recruit 10,000 to 15,000 personnel prior to 2025 in order to meet the need for the future mining development (SveMin 2012; STRIM-LTU Agenda, 2013).

4.5 Mining and Mineral Development in Sweden

4.5.1 Background on the Metal and Mining Industry

In the context of Arctic and subarctic region the mining activities in northern Sweden are of particular interest. This is not only because of similarities in climatic conditions, but also because of their development, historically, shows similarities with mining development in other part of the circumpolar North. This includes influence of foreign capital, connected

41 International Council on Mining and Minerals (ICMM 2012). The role of mining in national economies. Mining’s contribution to sustainable development.
infrastructure development, establishment of settlements, etc. In Sweden, however, mining activities started comparatively early and have proceeded into more ripe stage of technological and organizational development that can render useful knowledge when studying the development of younger northern mining activities. Mining industry developed in Sweden since the sixteenth century. Major mining activities are located in the sub-arctic northern part of the country, where rich mineral deposits were found, such as iron, copper lead, gold, and silver.²⁸

Nowadays, Sweden is found to be on the forefront amongst the EU countries in terms of ore and metal productions. Sweden produces gold, lead, silver, zinc, and copper, and iron. Accordingly, it has been reported that Sweden produced the largest iron ore in the EU. Of the EU’s total amount of iron ore produced, Sweden’s share was estimated to be between 80 and 90 percent in 2011 (SveMin, 2012). Although Sweden being one of the leading major producers of mineral in Europe, its contribution for GDP of Sweden is only 0.3% (Sweden Mineral & Mining Sector Investment and Business Guide, 2013).

According to Marketline Industry Profile, the Swedish metals and mining industry was one of the most economically feasible sectors with a total of revenues of $7.1bn in 2012. The iron and steel segment was the industry’s most profitable with entire revenue of $5.4bn, equating to 76.2% of the industry's aggregate value in 2012. When considering the performance of the industry, it is envisaged to accelerate with an expected compound annual growth rate (CAGR) of 2.9% for the five-year period (2012 - 2017). The sector is thus anticipated to stimulate the industry to a value of $8.2bn by the end of 2017 (Marketline Industry Profile, 2014).

As discussed above, the Swedish metals and mining industry’s contribution to the economic development, national GDP and the generation of revenue, as well as the employment sector and infrastructure development is immense and promising. Notwithstanding it is extremely important to develop methods that decrease the environmental impact of mining as some environmental degradation due to mining is inescapable. Thus, the Swedish government has played great role in adopting the important targets with regards to the legislative requirements that can facilitate the overall processes of investments in mining sector. This regulation also has been supported by a legislative framework that integrates environmental concerns into development activities and concerned with ensuring that the mining is conducted in conformity with environmental protection. These approaches make the situation more convenient in such a way as to recognize the existing interactive processes in mining sector and to apply the adopted policies and legal requirements of development in Sweden.

4.5.2 The Legal Frameworks for Mining and Mineral Development in Sweden

The Principal Legislations Governing the Mining Industry

Sweden is popular for its most rewarding jurisdictions in the world for mining investment. Potential investors are attracted by healthy economic growth coupled with transparent legal frameworks. Thus, considering the key legislation affecting mining companies in Sweden is of supreme importance. Several companies would like to invest in Sweden because companies operating in the mining and mineral resource industry will be benefited from the country’s history of mineral production, available geoscience data, significant ore and geological potential, extremely law sovereign risks, well developed infrastructure and strong mining culture (Sweden Mineral & Mining Sector Investment and Business Guide, 2013).

In the early 1990s, Sweden renewed its mineral law and parts of Swedish Geological Survey proposals on how the Swedish mineral strategy to be designed and about to be realized. The principal law in Sweden is the Swedish Minerals Act (1991:45), however, applicants should also be aware of, the Swedish Environmental Code (1998:808); the Planning and Building Act (1987:10); and the Cultural Heritage Act 1988.(See the Appendix III for most relevant Chapters and sections in Legal frameworks for mining operations in Sweden). However, in this particular case the Swedish Minerals Act, Environmental Code, and the Planning and Building Act will be considered.

The key mining licensing chain available under the above mentioned Swedish legislation are:

a. Exploration permit - this provides access to the land for exploration work. The permit lasts for the period of three years from date of its issue. Nevertheless, it can be prolonged in certain circumstances to more than three years if there are adequate and extraordinary reasons exits. The Swedish Mining Inspectorate has been vested with the power to issue the permit; and crucial information about the exploration work plan should be conveyed to the landowners/stakeholders. Once again, this also includes permits for test mining, which is issued by County Administrative board. However, this needs an Environmental Impact Assessment (EIA) including an official process of stakeholder engagement.

b. Exploitation concession - this is required for the extraction of certain categories of minerals and the term of concession of eligibility can be extended to a maximum of 25 years. This is also endorsed by the Swedish Mining Inspectorate. Besides, it requires a consented EIA concentrating on land use. In this case there is no formal meeting including stakeholder engagement.

c. Environmental Permit- is certificate giving permission to construct, work and finally withdraw from mining deposit under defined condition. Unlike the two key mining authorizations mentioned, this one will be issued by the Land and Environment Court. An accepted EIA is also required in addition to an effective consultation of relevant stakeholders. Thus, applicants should also be mindful of the Environmental Code which is applicable when granting a concession. Permits for exploration must be granted according to the Minerals Act and the Environmental Code.

The Geological Survey of Sweden, the Mining Inspectorate, and the Minerals Act (1991:45) are three of the major instruments apt to the government in the context of the development of mining and minerals policy. The Swedish Environmental Code being one of the supreme law of the country requires to ensure that whether a proactive an environmental impact assessment and management is carried out or not prior to permitting an environmentally hazardous activity\(^39\). Among the sections of this code, chapters 3, 4 and 9 of the Environmental Law are the most essential parts as far as mining and mineral development is concerned (SFS,1998).

### 4.5.3 Environmental Impact Assessment (EIA)

Environmental Impact Assessment (EIA) is one of the most effective and practical management tools employed to assist in the anticipation and minimization of the environmental effects of proposed development. EIA as a tool should be assumed in advance the environmental effects of the development project planning and design. EIA could also play a role in the proactive management of development in a way as to best fit the local environment and protect the welfare of human beings. In order to ensure the sustenance of

development projects based on sustainable development impact assessments, the integration of economic, social, and environmental aspects is of supreme importance. The environmental, social and economic policies also require a transparent public consultation as integral part of decision-making. And hence, EIA deemed as effective tools for facilitating and supporting the implementation of sustainable development (UNEP, 2006).

In the context of extractive industries, EIAs are complex studies that must be carried out and approved by the authorities prior to the mining operations are licensed. This is because mining may affect local society, natural flora and fauna, soil and regolith, the geological environment below the regolith, as well as and surface and ground water, and atmosphere. Thus, the possible impacts must be studied by a multi-disciplinary group with a role of responsibility of asserting the precautionary principle (Foster et al.2000) by predicting hazard and risk, and by cooperating with the management to prevent damaging incidents. We will consider the potential environmental impacts specific to mining operations.

The existing Swedish system of environmental impact assessment (EIA) is characterized by two main features; (1) a franchise or licensing procedure covering certain specified projects or activities with possible adverse impacts on the environment, and (2) an elaborate process of national physical planning aimed at specifying what should be done where in the country, and thus trying to strike a balance between competing claims on land and natural resources.

The project proponent or an operator is responsible for complying with the requirements of the EIA process and thus EIA must be prepared in advance in case of environmentally-hazardous projects like mining. The permit application related to such kinds of activities with adverse environmental impacts together with the prepared EIA need to be submitted to the mandated authority as it is stated under the Swedish Minerals Act. Mining and mineral prospecting activities are therefore subject to the terms of the Environmental Law including activities like oil and gas exploitation operations which are defined as “environmentally hazardous activities” (Appendix 3.2: SEC, 1998, 9ch. 1, 6§); and which are requiring a permit from the Environmental Court (Appendix 3.2:SEC, 1998, 9ch. 8§). For water operation related to mining like for example changing for groundwater is treated under chapter 11, a separate permit is needed.

The aim of the environmental impact assessment is to evaluate the overall planned activities which can have impacts on the human health, environment or on the management of land, water or other resources (Appendix 3.2: SEC 6ch. 3§). As far as physical planning is concerned, EIA should offer the most appropriate management data in terms of the environment, health, and natural resources related decision-making. This assessment process may identify the gaps in knowledge and facilitate for raising public’s awareness of the environmental, health and natural resource issues incorporated in the development activity (Appendix 3.2: SEC, 1998, 6ch. 3§).

The Planning and Building Act also regulates that EIA must be prepared by the an operator prior to the construction permit is granted according to physical planning programs and processes in order to identify the possible potential impact on the environment, on human health or on the resources management of any constructions in detailed plan. In case the plan is likely to have such an environmental effect as referred to in the Environmental Code in

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Chapter 6 sections, particularly sections 11-18 and 22 of the Environmental Code shall be applied when planning is carried out (Appendix 3.3: PBL 5ch. 2§).

4.6 The Case Study of Jokkmokk (Kallak) Iron Mines in Sweden

4.6.1 The Jokkmokk municipality- Societal Aspects, Population Distribution and Employment

The Jokkmokk municipality is situated in the mountain range of the County of Norrbotten in Sweden. This municipality is found in second place in size after Kiruna Municipality with total area of 19,477 km². According to the UN based report, for the last two thousand years, the bigger part of the surrounding area has been inhabited by Saami people who are known for their reindeer herding activity. Due to this and other reasons this area has been preserved as a UNESCO World Cultural and Natural Heritage Site under the name Laponian Area. The area is nominated as a world heritage property on account of its rich biological diversity, its historical value for Saami culture and its value as a Saami cultural landscape. These area dominated by both flatlands found in the eastern side and mountainous region in the western side. They are also popular for their attractive and majestic wilderness and remarkably beautiful mountainous and forested areas having gorgeous lakes and rivers full of natural magnificence (UNESCO, 2012; Barents Euro-Arctic Council, 2012).

For instance, the Kvikkjokk is one of the most popular recreational areas with its untouched, pristine nature of national importance. The Jokkmokk Municipality also has four national parks: Sarek, Padjelanta, and Stora Sjöfallet and Muddus national parks. These parks are popular with tourists as these are characterized by their own distinct unique nature. More recently, however, several new mining projects are coming to the stage. This situation has created great hope of employment for the municipality and local people. The Norrbotten County where Jokkmokk is situated is one of the mineral-rich regions in Northern Sweden. This county covers nearly one quarter of Sweden’s total land area and is sparsely populated with a total population of approximately 249 000, or less than 3% of Sweden’s total population (UNESCO, 2012; Barents Euro-Arctic Council, 2012).

Jokkmokk has been a traditional Saami area and a Saami cultural center. The development of extensive hydropower projects and domestic railway construction brought about successive movement of people to the Jokkmokk during the period of 1910 to 1960. In the 1960s this municipality had about 12,000 inhabitants and this was the time when the population reached its peak. Nevertheless, since 1960 to the present the Jokkmokk population has been steadily declining due to migrations to other urban areas within Sweden in connection with certain problems of increasingly high unemployment in the area.

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Although Jokkmokk is the second largest municipality in Sweden in its areal size, it is a sparsely populated municipality with 5065 inhabitants in 2013. When considering the population age distribution, the general trend show that there is a decrease in the number of 20-29 year old residents and an increase in the number of population who are retired. Figure 4 and 5 shows how the inhabitants of Jokkmokk Municipality is declining for time interval of 2002-2013, development Jokkmokk residents’ percentage age distribution by age in 2013 respectively. According to Sweden’s National Statistics data bases that Jokkmokk’s land area is 761,400 ha, and the population density in the municipality is 0.29 inhabitants per km (Eriksson, 2013). Of the City’s approximately 5,100 residents are the majority (31%) in the age segment 45-64. The population change in the municipality is negative due to the birth deficit and migration to other part of Sweden.

Apart from being sparsely populated municipality, the municipality has been struggling with high rate of unemployment. The decline is due to lack of job opportunity and unattractive economic development within the municipality.

As the result most of the younger generation is forced to migrate to the more urbanized part of Sweden in case of finding jobs. This trends show that how the number of population is getting down and the society in the Jokkmokk is slowly dying alongside the economic development deteriorated through time.

4.6.2 The Jokkmokk (Kallak) Iron Mines Projects-Overview

Beowulf has got an authorization for exploration of the site but did not get the mining permit that give consent to commence the production. However, the exploitation phase is not started yet until the plan is finally acknowledged by environmental court of the government (Beowulf plc, 2010; Bush, 2013).

The Kallak deposit was originally discovered in 1947. The assessment was conducted by the Geological Survey of Sweden (“SGU”) in the early 1970s and all essential pre-exploitation tasks were also completed. Kallak is today one of the largest known magnetite deposit on pipeline in northern (Beowulf Mining, 2011). According to assessment done, it is estimated that the mineral deposits in the two sites (Kallak North and Kallak South) comprised about 121 million tons of iron ore. The records of the company exhibits that Kallak will cost roughly $ 0.9 billion for construction purposes and start up, as well as generate a revenue of about $2.9 billion over its maximum period of 15 years.

It is estimated in 2010 that these iron ore reserves may create a total of actual profit. Although the quality demanded depends on the price of iron in global market, the profit that will be produced is anticipated to fluctuate between the lowest US$ 2.3 billion to the highest US$6
billion over an estimated fifteen year project life time (Beowulf Mining, 2010). According to the multiple sources of evidences like the EIA study report and the interviews conducted and the CLD which is conducted to demonstrate the dynamic effects and consequences of the Jokkmokk Iron Mines (which will be discussed later), the mining operations is also supposed to have a risk of potential damage on the environment and intrusions on the traditional way of socio-economic activities. The cultural heritage will also be endangered as these sites are located in environmentally sensitive areas of the Arctic Circle and ecologically vulnerable areas of the Saami communities. However, this project thesis focuses on the Kallak, especially Kallak North Iron Mines as the EIA study for Kallak North is available as opposed to the Kallak South and Ruoutevare Iron Mines.

Nevertheless, JIM being one of the biggest projects in Sweden, it has been well received by various anti-mining movements of the pressure groups and the local people, as well as local activists and among observers in the media and academia, and the international community. The planned mine is, therefore, against the consent and interest of the Saami communities and against interest of environmental groups/community activists. This is due the fact that various stakeholder groups like environmental NGOs and civil society organizations, the local people, local activists and journalists perceive that there is a causal correlation between mining activities and environmental effects on the mountainous Arctic region of northern Sweden as this will be discussed further in the later sections. Besides, mining causes alteration of landscape, loss of rarely found biodiversity and ecosystems, habitats and fragmentation of wild animals. It can also bring about pollution of water and air and disruption of the traditional way of socio-economic patterns of the local communities and local people, Saami who dwell and earn a living as life-long reindeer herders.

4.6.3 The Case Study Sites - Kallak Iron Ore Projects

Location

The case study sites of Kallak iron ore deposits and the project sites are located in the Jokkmokk municipality about 24 km north of the Arctic Circle. This site is situated 40 km north west of the town of Jokkmokk and between the villages of Björkholmen and Randijaur (see figure 6). The site of exploration is placed on coordinates of 66°47’ N and 19°08’E. The project site situated about 30 kilometers southeast of the boundary of the World Heritage property. National parks and nature reserves making up the world heritage Laponia area are also situated north and north-west of the Kallak deposit. The project is situated in numerous geologically related mountain ranges. The deposits lay on hilly ground covered with forests (Beowulf Mining, 2011).

The two ores at Kallak (Kallak North and Kallak South) comprises two substantial iron ore deposits of high quality quartz banded magnetite type having a total of 600 million tonnes of ore of iron. The ore will be exploited from the projects covering a total area of approximately 243 square kilometers in size (Beowulf Mining Plc, 2014). With possible iron ore resources of more than 600 Mt with a maximum range of roughly four kilometers is found in Kallak. Kallak deposit will be mined by means of an open pit mining operation. Annually 10 Mt independent high concentrate grade (69 % Fe content) iron ore will be produced during 15 years life span.

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The deposit is holding an average run of mine (ROM) ore grade average of 35-42 % Fe. In the context of potential viability of the deposit, it has a stripping ratio (amount of waste rock versus ore) of 1.5:1 means that 1.5 t of waste per 1 ton of ore (Beowulf Mining Plc, 2011).

As mining is a common experience in Arctic region of Sweden, it is anticipated that mining prospecting and mineral working will be possibly done throughout the year at Kallak. The waste rock to be disposed of will amount to 900 Mt during the 15 years life time of the project. The volume of waste rock that will be generated is about 120 million m³ by assuming an in situ density of 1.9 t/m³ for compact rock (ibid, 2011).

The recent Ore Market Report revealed that at the Kallak deposit comprised of mineral resources that could sustain a capacity of mines estimated to the project life time of about 60 years. Nevertheless, the calculations that has been presented here considers only the first 15 years of the mining projects (ibid, 2011).

4.7 The Jokkmokk Iron Mines Case and Assessment of its Impacts

4.7.1 The Economic, Social, and Environmental Impacts-Overview

As discussed above, mining activities in the Arctic region is controversial due to the uniqueness and distinctive social and ecological significance which will be further developed and discussed in the later sections. Similarly, the case of Jokkmokk (Kallak) Iron Mining in this region is quite questionable as it is carried out in nature reserve or in the protected areas of “national interest” for conservation or reindeer herding purpose. This also will be developed in the sections below. Jokkmokk being an indigenous land for Saami, it is the municipality where mining and mineral development is occurring. As this thesis focuses on mining and minerals development in the context of Kallak Iron Mines, it assesses briefly about how the newly initiated foreign-based projects have both positive and negative impacts on the society; about how it contributes to the economic development of Jokkmokk municipality, as well as the region and the nation in general.

Nonetheless, in this subsection the major adverse environmental impacts from Jokkmokk mining operations like for example the impact on land and the surrounding ecosystems on which wastes of all sorts are disposed of is briefly assessed. The extent of environmental damage of the mines on the landscape, habitats and ecosystems which could otherwise be
used for other purposes including the traditional reindeer husbandry and other related activities of the local people are also considered. This subsection of the study takes the impacts of iron mining on water system and aquatic life and air quality of the surrounding areas into consideration. It also examines thoroughly as this thesis seeks mainly to focus on the environmental aspect so as to get a complete picture of the impacts of the JIM projects on the environment in general.

The negative impacts of the mining on the cultural heritages and socio-economic patterns and historically established practices and way of life of the Saami people is also assessed briefly in the context of the effects of the mines on the socio-economic aspects. Nevertheless, in order to get a mental image of the fact on the ground various sources and documents have been used as these are vitally important instruments. Among these sources the Geological Survey of Sweden (SGU), the Independent Conceptual Study Paper Completed on the Kallak Iron Ore Deposit for Beowulf plc., the Environmental Impacts Assessment (EIA) study report by Eriksson (2013) on Kallak Iron Mining and other sources have been considered for the study.

4.7.2 The Economic Impacts and Contribution of the Jokkmokk (Kallak) Iron Mines

When considering the socio-economic impacts, the Jokkmokk (Kallak) Iron Mines is thought to bring positive changes for the society in terms of job opportunity and the livelihood of local communities, and the wellbeing of the local people, economic growth and infrastructure development in the Jokkmokk and region in general. It may also play crucial roles in the reduction of the in-migration of the younger generation to other parts of the country. It also has its own contribution to the employment sector and social development of the local people, as well as for the GDP and generation of government revenue.

According to Eriksson (2013), Kallak Iron Mine is supposed to create employment opportunities which amount to 250 jobs during construction phase. The number is expected to grow on average to 500 during the establishment period of 2.5 years. Apart from direct jobs provided by the mining project additional jobs in the service sector indirectly arising out of the mine, which means more jobs will be created locally. The estimates of the effects have been conducted using the calculation model: Model rAps- system for regional Analysis and forecast by NUTEK, the Swedish agency (rAps). The estimated effect on employment in Jokkmokk indicates an average based on the so-called multiplier of 2.2. This can be understood that every direct job in the Kallak project creates another 1.2 jobs in Jokkmokk. In addition, the study has included employment effect at the regional level have been modeled. The findings indicate that an average multiplier of about 2.3 required, and thus every direct job in every mining operation creates another 1.3 jobs in the county (ibid 2013).

Eriksson (2013) state that based on the results of the calculation model rAps, effect on employment in Jokkmokk has been estimated. Accordingly, the EIA study results show that the JIM on average during years of its operation will generate about 190 million dollars per year in taxable income from the mining activities. JIMAB main interest is that to recruit employees as much as possible from the local areas or other employees who are from outside the municipality and willing to move into the Jokkmokk municipality. It is also noted that a deeper analysis of the socio-economic impacts in connection with the socio-economic aspects of the Jokkmokk is required before the application for an environmental permit. It is also suggested that when the mining operation commenced possibly the Kallak mining contribute to significant addition to labor market in Jokkmokk. Besides, the mining activities will provide direct and indirect jobs which can lead to positive social and economic effects. Demand for labor will partly to meet the locals and partly through residence. When the
mining operations cease surely will lead to some decrease in demand for goods and services in the area.

4.7.3. Social Impacts of the Mine on the Reindeer Herding Communities and Saami

The Reindeer Herding Saami in Sweden and their Historical Land Right Claims

In the inland part of Sweden, it is estimated that there are about 20,000 Saami people covering 157,487 sq. km (about 35 percent of Sweden’s surface area). The Saami people claim that inland part of northernmost Sweden was inhabited some 10,000 years ago by their great ancestors. Under the present system the Saami do not own the reindeer grazing land itself; it is owned by the state, forest companies, farmers and others. There are about 2,500-3,000 of the approximately 20,000 Saami who are a semi-nomadic living in Sweden are involved in reindeer herding. They are handling about 250,000 reindeers. The reindeers are dispersed over widely area across the northern 35-40 percent of the country. Besides, they are engaged in other activities like hunting, gathering and fishing. The Saami are united by a common distinctive personality and language and ethnic and cultural ties (Ministry of Agriculture, Food and Consumer Affairs Sami Parliament, 2005; Minority Rights Group International, 2012).

Since the 2011 amendments to explicitly recognize Saami as a people by Swedish Constitution, there is a permanent Saami parliament in Sweden, as well as the regional Saami Parliamentary Council. The mere recognition, however, did not empower Saami to get the required rights. Sweden has not yet adopted the ILO 169 (Appendix 1:5: the Indigenous and Tribal Peoples Convention 1989/ILO-Convention 169). As the result, the indigenous peoples’ traditional rights to land are not recognized as part of the public law of Sweden, and therefore, Saami are unable to exercise the right to profit from mines in their areas whenever possible. They also are not able to take part in the processes of management concerning land and natural resources issues (Ibid, 2005; Ibid 2012).

Saami who are living within their delimited areas defined by the law of the 1971 Reindeer Grazing Act, called samebyar, and practice reindeer herding as their foremost source of income in Sweden. And hence, it seems that they are not well protected from nay kinds of corporate impacts like for example, the expanding mining projects, as well as other development activities like power projects encroaching on to their area as the prevailing mining legal requirement do not have provisions to protect the rights of Saami people. One typical example of interference they are faced with is the Jokkmokk Iron Ore Mine located where reindeer-herding is taking place and vital reindeer migration paths are eminently found (ibid, 2012; Granqvist, 2013). Two of the reindeer herding communities within Jokkmokk municipality, namely Jåkhågaska Tjiellde and Sirges are among those most affected by the same company (JIMAB). Notwithstanding the stakeholders’ interest, especially the case of Saami and other stakeholder groups’ consultations was not given much weight. As a result, there were protests against company by the local activist in connection with the environmental and social impacts and damage that may happen as the result of the JIM operations in the above mentioned communities of reindeer herding Saami people. Saami also protested against the mining company because they feel that their voice not heard as to what has been proclaimed in the Swedish Mineral Act (ibid, 2013).

Furthermore, Granqvist (2013) states that the Saami communities were faced with difficulties while using the grazing areas during winter time of November and December due to the continuous exploration and expansion of the JIMAB. One main reason is that the company has two sites like Parkijaure and Kallak for test-drilling. Among these sites that are situated on a peninsula and are used all year round, Jåkhågaska Tjiellde is the primarily affected one. On the one hand, the peninsula is classified as one of “national interest” as it is crossed by
reindeer moving paths both in the northern and in the southern direction. Any roads to be constructed for the future transportation in connection with mining venture will emerge from the affected sites will cross reindeer moving path in the north. On the other hand, there are resting areas for the reindeers on the peninsula. Nevertheless, the socio-economic patterns relating to the reindeer husbandry activities in those communities were adversely affected due to various reasons. One good reason is that the landscapes of the surrounding area is fragmented due to mining prospecting and resulted in hindrances so that Saami were forced to take their reindeers upon a mountain where they most often do not use. The move to the mountain for new grazing ground caused the killings of several reindeers by predators which are found up there. One other reason is that the new ground for grazing was not sufficient for the provision of supportive foddering as the mountain is deprived of grazing ground. Besides, the traveling costs for Saami would increase as the mountains are situated far away from their homes.

4.7.4. Environmental Impacts of the Jokkmokk (Kallak) Iron Mines

Impacts of the Mines in Jokkmokk on Land through Waste Disposal

Mining of iron ore in Jokkmokk areas will have adverse impact on the landscape. This is due to the fact that several million metric tonnes of rocks will be removed from the land of mining sites, which consist of several tonnes of mineral ore that would be mined per year. For example, the Kallak iron mine project will induce a disturbance of 243 sq. km of lands including the physical and natural, socio-economic environment and the ecosystems in the Jokkmokk areas and in and around the Saami Communities. From Kallak Iron Mines the total tonnage ore deposit that will be mined is 600 Mt and, the total waste that will be mined during the project life time is 900 Mt. The recent Ore Market Report revealed that at the Kallak deposit there are resources that could sustain the mine venture for at least 60 years (Beowulf Mining Plc, 2011).

Apart from impacts due to the landscape disturbances, as well as severe and permanent land degradation, visual and other related environmental impacts may occur on the landscapes to be formed due to the disposed of waste and tailings storage. Eriksson (2013), in this regard, argues that there is a possibility that the waste rock dump and tailings storage will gradually form new altitude formations in the landscape. However, the stockpiles’ proposed maximum height should be attuned in a way as not to exceed the natural elevations in the vicinity of the deposit. During the final phase of mining operations; however, waste rock stockpile that rises above the forest edge in some places become visible from lakes Skalka and Parkijaure; tailings ponds eventually be seen from Randijaur. However, the mining and industrial sites may appear only from the neighborhood like Kvikkjokk Road and the Island Björkholmen. Furthermore, it is noted that there is a risk of creating of new lake as the open pit that will be formed during the project operation. This makes it susceptible to form a deep pit that guarantee inflowing groundwater and surface water, which in turn gradually lead to the pit to be refilled with water at the completion of the operation. Eriksson, therefore, suggested that waste rock dump and tailings storage will after finishing operation may require treatment and return to natural soils.

Like most of mining projects that were initiated and carried out in the past, the JIM, also will follow the same trends with regards to waste rock deposition and tailings, with no return of waste materials to the excavated pits. Or with no mine reclamation and rehabilitation or post closure monitoring program, apart from some form of treatments to return to natural form of soil.
Impacts of Iron Mining on Water Quality in Jokkmokk

The Geological Survey of Sweden (SGU) ascertained that the ore deposits of Kallak North and Kallak South together comprises a considerable accumulation of high quality quartz banded magnetite. According to the drilling tests done within the entire area of exploration by SGU, the ABA testing (Acid Base Account) demonstrated that the waste rock will not produce acid mine drainage in either the short or long term. So that the conducted leaching tests show that the leachate quantity is far below the acceptance criteria for inert landfill. The Kallak ore deposits comprised of an average grades ranging between 35-42 % of iron. The analytical results show that the deposits have low background values of chemical elements like titanium (< 0.1 %), phosphorous (0.04 %) and sulfur (<0.6 %). These figures shows that the level of acid bearing substances in the ore or waste rocks in both deposits of Kallak are very low and may not result in water pollution or adverse environmental impacts on the surrounding water resources. And hence, there is no risk for acid mine drainage, which means that no special environmental care is required at landfill and utilized waste rock in the field (Beowulf Mining, 2010).

Eriksson (2013) states that none of the waste rock species are expected to produce acidic leachate on either the short or long term, or the sulfur content of all samples was generally very low and it is lower than 0.04 percent. All waste rock species exhibited elevated levels of phosphorus and selenium compared to the average content in the Earth's crust, while tellurium, arsenic and uranium were elevated only in certain rocks. Furthermore, it is discovered that the water that runs off from waste rock stockpiles may contain elevated levels of nitrogen derived from explosive remnants of detached attitude of the rock material. And hence, increased nitrogen levels may contribute to eutrophication and disturbances of the natural nutritional balance. When it comes to mining related dust pollution, if the amount of dust increased during construction and operation phase, consequently, it may have increased potential risk for the vegetation. This is because the vegetation covered with a thick layer of dust would be affected and due to reduced photosynthetic processes. If large amounts of dust settle in water bodies, it can cause an increase in turbidity and lead to reduced biological activity as well.

Furthermore, the mining operations will affect the future hydrogeological conditions mainly throughout flowing of groundwater from the open pit. To some extent will other facilities within the business to influence the hydrogeological conditions, mainly through changes in runoff. In this sense, the area in question Kallak North adjacent to watercourses those are likely to represent hydraulic boundaries. In the current situation, however, it is not well known about that whether there is good hydraulic contact between the aquifer and surrounding waterways, which most likely limits the rivers because water-reduction measure spread around the open pit. For the upcoming application for a permit under the Environmental Code will require field investigations to be performed in order to clarify the connection between aquifers and streams. Consequently, because water-cut during dewatering of the open pit better foreseen and assessed. Apart from the risks of lowering of the ground water table, it is expected that the groundwater chemistry will be affected by vertical expansion which leads to an increased ground transportation and shorter reaction time, which in turn leads to lower pH, a higher content of organic carbon and oxygen, and lower concentrations of dissolved elements (ibid,2013).

With regards to surface water one important point to be pondered is that in extreme rainfall situations much rain can overflow of water from the clarification (cleaning) pond via emergency spillway, to avoid submersion of the dam crest. Further investigations need to be carried out regarding sizing, design and location of emergency spillway at clarifier pond. One other point to be considered is that the flow of water in small rivers decreases during mining
operations. For example, during the operation of the mine drains water towards Lilla Luleå River and the water will be subjected to decrease slightly as a result of the operation. According to information from Vattenfall, it is found out that the flow of water in Parkinson Dam fall by 170 m³ / s (about 5360 million m³ per year). The surface water chemistry at the Kallakjaure are expected to be clouded and nitrogen levels will be enhanced (ibid, 2013).

**Impacts of the Mines on Air Quality and Climate**

Any mining operations impact the air quality as the result of emissions from other operations and explosive gases, emissions from transport, and dusting- particulate matter. Eriksson (2013) states that while the project operation is active blasting causes especially emissions of explosive gasses like nitrogen oxides (NOx) and carbon monoxide (CO). At a mining rate of about 10 million tonnes of ore per year, the annual consumption of explosives amounting to about 5200 ton. Emission calculations for explosive gases will be performed and reported in future environmental permit application. Moreover, emissions from transport, internal combustion engines, machinery- nitrogen oxides (NOX) and carbon dioxide (CO2); as well as particulate matters (PM) are other factors which may have adverse impacts on the air quality and human health in general.

It is also discovered that emissions from transport and mining machinery which are using fossil fuels are the main source of carbon dioxide and some other greenhouse gas emissions. The total size of the emissions are only estimated and not calculated in the current situation when the choice of vehicles, fuel, and other tools are still under consideration. Emission from transport may be direct within the areas of operations, and indirect from outside the sites of operations. With regards to direct transport, it is performed in the operational areas of the mine and concentrator, which includes excavating and drilling machines, tractors and dump trucks. Whereas and indirect transport is occurs out outside the operational areas, such as transportation of materials, products, fuels and explosives to and from mining sites (ibid, 2013).

According to Eriksson (2013), it is suggested that during mining is active, dust emission will be high and which is backed up by internal transport, loading and unloading of ore and waste rock, which in turn can give rise to a local environmental disturbance. He also noted that the spread of particles from these operations are considered to be limited to the immediate area. However, the extent by which the particles are spreading will depend on wind speed and wind direction, and in that case these particles, can be spread over larger areas. At Jokkmokk airport performed daily wind measurements show that in the area there is an average wind speed of 3 m/s and with a dominant northwesterly wind direction. This means that areas south and east of the proposed tailings pond is expected to be most affected. If the dust, particulate matter is released in greater amount can cause irritation of the eyes and respiratory problems on people and animals.

**The Impacts of Noise in Mining**

The principal sources of noise and vibration impacts are numerous. Transports, industrial activities, especially at the construction stage, blasting and pile-driving are some of the major sources cited (Selman, 2000). For example, in mining operation the noise as unwanted sound incurred may cause disruption to people and animals which are at nearby. The noise in mining may emerge from different sources in connection with the establishment construction of the mine and during the ongoing operations. This means that sound interference mainly arising from mining operations can be divided into two phases: establishment phase and operational phase. On the one hand, noise disturbance may arise mainly from blasting during the establishment phase, on the other hand, at the industrial site, noise from machinery and transport will arise over the construction of facilities. Furthermore, noise occurs mainly
around the industrial area, ore handling and around storage areas for waste rock when once
the mine is operational. Noise will also arise in blasting and crushing of the loose-maintained
mountain. Besides, noise occurs around machinery and transportation in the area and out of
the area (Eriksson, 2013.)

According to Tune Ore Acoustics AB performed calculations of external noise from the
planned mining operations on behalf of JIMAB, the equivalent noise level is the total noise
emerging from the simultaneous operation of rock drilling units. This includes primary
crusher, concentrator, transportation to and from waste rock dumps and primary crusher and
disposal of waste rock stockpiles and dumping in the primary crusher. In the calculation of
the maximum instantaneous noise levels of dumping estimated to be high in the most intense case
on the west waste rock stockpile. So that dumping in the primary crusher showed estimates
that in this scenario are exposed more than half of the houses at Björkholmen for maximum
noise levels over 55 dBA which is the benchmark for operation at night. In the calculation of
the maximum instantaneous noise levels of dumping in the southern waste rock stockpile and
dump in the primary crusher calculations showed that no houses are exposed to a maximum
noise level above the benchmark of 55 dBA. In conclusion, the impact on human health due
to noise is moderate provided that the proposed security measures and adaptations of the
activity undertaken. All this noise disturbances is occurring when mining operations are
active and then ceases as the mining is completed (ibid, 2013).

Impacts of Mining on Natural Environment and Biodiversity and Habitat

Apart from the visual impacts due to mining operations and waste rocks on the landscapes of
the locality, impacts are expected to occur in the natural environment associated with mining
consists of land claims, noise, vibration and dust. Besides the mining operations related
habitats change in time, disturbances from increased operating and human presence in the
area are also a strong reason that animals avoid staying in the neighborhood (Eriksson, 2013).

According to Eriksson (2013), it is noted that there are two major planned concession areas
proposed for waste rock storage: one at Kuossakåbbå (western warehouse) and one south of
Kallakjaure (southern stockpile). The waste rock to be dumped shows overlaps to some extent
according to swamp forest inventory Board, though there are no nature reserves or areas with
unique natural values in the areas to be utilized for waste rock stockpiles. Nevertheless,
according to the Forest Agency's inventory there is a key habitat area within the area planned
for the west waste rock stockpile, in Kuossakåbbå. At the top of Fastoviken there is also a
key-overlapping to the western waste rock deposit. The western waste rock stockpile also
overlap to the area Kuossakåbbå, assigned nature class 2; and on other hand, the southern
waste rock heap will partially overlap to one area of natural value class 2, according Pelagi
inventory.

In general terms, the various groups of consultants like the Board of Forestry, Pelagia
Environmental Consultant, and County Administrative Board of Norrbotten have been
conducting inventories on forest, nature reserves or areas with unique natural values and
wetlands within the areas. As to the various inventory performed by these groups, within the
business concession area, industrial fields and area of tailings either nature reserves or areas
with unique natural values is affected by the operation. According to the Forest Agency's
inventory; however, the proposed activity will affect swamp forests, key habitats and areas of
natural value class 2 and 3 even if these are not considered to be unique areas or nature
reserves (ibid 2013). According to the criterion, Wetlands Class 2 should as far as possible be
left intact, whereas Class 3 should have certain values and be left intact, but some
encroachment may be permitted if the impact on the natural and cultural values can be limited
45. With regards to the future application for a permit under the Environment Code, where the
business's design and location will be described in detail and suggestions for protective
measures need to be worked out. All the above cited factors which are considered to have
moderate impacts on the natural environment during the mine's operation. After the
completion of the operation these areas are expected to return to natural areas and direct
impact on the natural environment ceases. Apart from the mining operations that may result
in habitat loss and fragmentation for wild animals, the impact caused by the direct land claim,
and other factors like noise, dust and vibrations can cause the animals leave the area and
migrate far away from the mining sites leaving their natural habitat(ibid 2013).

45 Measure priority study Ore Transports between the Kallak Mine and the Malmbanan line (2012).http://www.beowulfmining.com/13-02-
11%20Ore%20Transports%20between%20the%20Kallak.pdf
5. Results from Case Study and Analysis

5.1 Results from the interviews

5.1.1 Opinions and views of the interviewee respondents

To compare different opinions, viewpoints, interests and concerns of the stakeholders in relation to the Jokkmokk (Kallak) Iron Mines operational impacts in connection with the local people and communities, and the Jokkmokk municipality and region a total of three people who are experts were interviewed and their responses are presented. Responses to various questions vis-à-vis perceived impacts of the Jokkmokk (Kallak) Iron Mines on the socio-economic aspects concerning the Jokkmokk municipality and region and on the natural environment presented respectively. The perceptions of CSR frameworks of the company whether it will undertake sustainable approach to mining through maintaining stakeholders perspective and continue ethically and legally practice CSR and communicate essential information relating to its nonfinancial performance prior to and during the life-time of the project or not is evaluated by the respondents and presented. Finally, the respondents’ perceptions and visions about the future development of the Jokkmokk Municipality and region in the context of sustainable development to Jokkmokk (Kallak) Iron Mining operations through approach of CSR are also presented.

5.1.2 The Perceived Environmental Impacts of the Jokkmokk (Kallak) Iron Mines

With regards to the perceived impacts of the Jokkmokk (Kallak) Iron Mines on the natural environment of the area, different opinions and views are presented by the respondents as all of them have different perspectives in this regard.

When Professor Björn Öhlander (interview, 2014) asked how his opinion is concerning the environmental impacts of the JIMAB, he answered that the project would leave positive legacies for the society and would have less negative effects on the environment. As to him, the environmental impacts are not that much as compared to other mining ventures in northern Sweden. He further described that mining operation may be considered as energy intensive activity and as a result this may have some impact on the environment. However, for that matter it is as small as only 2 percent electricity is used for all of mining operations in Sweden. In this respect, the environmental and local climate change effect is very low because the energy consumption of JIM projects is minimal. One other impact could be contamination due to the release of gases like nitrogen to the atmosphere while blasting by using explosives for open pit mining. However, this elevated nitrogen may occur mainly in the form of ammonium resulting in slight impact. Dust, particulate matter may also be generated from the open pit, blasting and road traffic. This may result in emission of explosive gases nitrous oxide (NOx) and carbon monoxide (CO) and some greenhouse gases like carbon dioxide (CO₂) to the surrounding environment during the time when the mine is active, which in turn might result in minor impact on the air quality. He also mentioned that dust or particulate matter, however, has no potential effect on human health impact and does not pose adverse effects on the biological diversity, and does not intervene the reindeer herding activity.

Öhlander suggested that apart from few impacts cited by him above, there are no hazardous substances or waste rocks that can be generated from JIM Project operations because the ore deposit is iron oxide or magnetite. He also anticipated that the rock or ore deposit of this kind comprised of low levels of sulfur. Similarly the background levels of titanium and phosphorous is so low to extent that may not release acid to the environment or pollute the surrounding. The waste rocks and tailings, settling ponds also have very low level of toxic substances. This may not have impacts on the natural environment, as well as the surrounding
communities. Furthermore, he anticipated that the local people do not see comparatively high negative effects on the environment even if the mining operation’s location is in the controversial areas of Arctic or sub-arctic region. He brought the case of the Kiruna mines which has been mined for the last 120 years and cited that the mining operation did not bring substantial threat on the environment and the surrounding communities or the local people.

Moreover, Öhlander (Interview, 2014) reacted that the Jokkmokk Iron Mines projects will have no potential threat or risks that can compromise the ability of the future generations. This is because the waste rocks, tailing’s dam, settling ponds may have no hazardous or toxic substances that can cause potential threat or risk. Mine closure or remediation is not needed because the environment by itself can conserve and rehabilitate itself just after the mining operation is withdrawn. Consequently, the land can be prepared for post-land use purposes. He also disagrees with the idea that the negative effects of the mining operation on the environment will be high because the mining is located in Arctic or sub-arctic region.

On the other hand, when Mehl (Interview, 2014) asked about his perceptions towards the associated environmental impacts, he answered that Arctic region is in general vulnerable due to its prevailing climatic and weather conditions and other distinct nature of the areas of the northern Sweden including its mountains and vast landmasses. And hence, he suggested that one should not see the impacts of mining from one angle that observe the smallness of the size of the mine sites irrespective of the environmental impacts that can be associated with the mining project operations. He also argue that some authorities still assume that the extent of impacts are somewhat minimal and negligible as mining is occurring in a very small area in the sense that the mine sites are very small in comparison with the size of Jokkmokk municipality or Norrbotten County. This kind of perception disregards the resulting negative consequences on health and safety of the local people and plants and animals as some decision-makers and politicians do. Mehl opposes such an idea that some politicians agree upon, like for instance, less land mean fewer impacts on the environment. One other mostly mentioned idea is that just as the population density is about 0.3 people per square kilometer area, less people mean less impact on people. Nevertheless, he proposes that this kind of negligence or renunciation may not solve the real problem in the context of social and environmental impacts that can be associated with mining operation in the area.

5.1.3 The Perceived Socio-economic Impacts of the Jokkmokk (Kallak) Iron Mines

The perceived impacts of the Jokkmokk (Kallak) Iron Mines on the socio-economic aspects relating to the local people and communities, and the Jokkmokk municipality and region is seen from different angles by the respondents. When one of mining expert, Professor Björn Öhlander (Interview, 2014) asked about how he perceives the socio-economic impacts of the Jokkmokk (Kallak) Iron Mines, he answered that mining is important as it leaves positive legacies for the society in addition to the economic development to be obtained and apart from the environmental issue raised and the minimal impacts on the environment anticipated. As to him the impacts on local people and reindeer herding activity need not be considered as major issue in comparison with the benefits that could be obtained from the mineral mining. The case of Saami and the problem of reindeer husbandry more or less acceptable because he assumes that reindeer herding could be carried out everywhere in the larger areas within northern part of Sweden. Another reason given by him is that the mining is carried out in a very small area as compared to the areal size of land that can be used for reindeer herding. In this regard, the effects of mining is very localized as the areas delimited for mining venture is insignificant in comparison with the bigger land mass of the area used for reindeer husbandry.

Furthermore, Öhlander (Interview, 2014) marked that there are no major direct negative social impacts that may be associated with mining operations, except some indirect impacts.
regarding mining operation in terms of the problem of miscommunication and misunderstanding by the side of the local communities and the local people, Saami; as well as NGOs/civil societies and complaints by some local activists and tourists who have been visiting the northern part of Sweden in connection with the resistance to the positive legacies that the mining leaves for the municipality and the region. He also suggested that, however, all of these groups did not fully understand the current situation of the area’s societal challenges and critical problems of the time. As well as urgent need of the people as it is slowly dying unless some economic development is carried out that can sustain the life of the people at large through enhancing the development of the municipality and the region. In this sense, he supports and agrees that the JIMAB may bring some positive results and hope for the region, municipality, as well as for the communities and local people.

When considering the case of the socio-economic impacts of the JIMAB, one other expert, Wolfgang Mehl (Interview, 2014) had a different opinion and view. And hence, he reacted that he has some reservation with regards to mining venture which assumed to create job opportunity which might have economic growth and retain people stay at their place through reducing in-migration. He flashed back to later events of the past in Jokkmokk and about what has happened in connection with extensive projects. As well as the infrastructure development between 1910 and 1960s when the number of population were at peak, and reduced by half at present. He also suggested that with this past glory in mind, the Jokkmokk municipality may create a better opportunity and need the mining venture to create some economic benefit for the municipality through creating job opportunities for the local people. Nonetheless, Mehl assumes that such a thing may not happen overnight rather it takes several years. He also takes into account sustainable development as this may be of supreme importance to increase the number sustainably to the level of the 1960s and retaining the in-migration occurring currently. Mehl, therefore, stresses that except the short term effect of mining situation and its associated socio-economic impacts of the Jokkmokk (Kallak) Iron Mines, no one can tell exactly what will happen in this respect on sustainable basis. And hence, in order to tell about the long-term effects the company needs to identify and integrate a robust and workable CSR management frameworks and standards that can ensure sustainable development in the municipality.

On the other hand, when considering the question regarding the socio-economic impacts, the anonymous respondent (interview 2014) answered indirectly relating to the positive changes and the legacies that it leaves for the local people and communities. According to him, Saami communities have been peacefully protesting over the mining project plan for various reasons. One of the main reasons for the Saami communities to peaceful protest over the mining project plan is that they have no trust and confidence in the JIMAB. This is because they argue that its operations and mineral developments entail negative impacts on their lands, land-uses, and culture and particularly on the reindeer husbandry in the area where their traditional livelihood and nature and aesthetic value depends upon.

The anonymous respondent (interview 2014) also suggested one other major problem that need to be resolved is that the problem of miscommunication and misunderstanding between the company, government and the local people, Saami and some NGOs/civil societies. Accordingly, the respondent suggested that it might be valuable and agreeable for JIMAB to get involved in matters relating to the socio-economic and environmental impacts of the projects while project planning and during and prior to the project implementation. He also recommends that in order to ensure sustainable socio-economic development the company needs to manage the problem permanently. This can be done through reconsidering the interests and expectations of the pertinent stakeholders and solving the cause of conflicts at least among them. To manage the problem among stakeholder groups, the involvement of the
relevant coordinating bodies at local and county level as they play a role to facilitate proper communication between the government/municipality, business and society as these are major stakeholders.

5.1.4 Handling CSR and Sustainability Issues

When considering the management and communication concerning CSR and sustainability issues, the company’s information relating to the CSR frameworks and about how its ways of management regarding nonfinancial performances of the project work is being handled is not satisfactorily disclosed on its web pages. As well as no adequate information about what it is going to happen in the future in the context of the CSR and sustainability issues. As a result different opinions and views are reflected by the respondents in terms of the JIMAB’s concern for the environment and society and disclosure of the essential CSR and sustainability information through maintaining stakeholder’s perspectives.

When Professor Öhlander (Interview, 2014) asked about what he suggests relating to about how CSR and sustainability could be managed in the Jokkmokk case, he did not propose a direct answer. Yet he explained that as far as there are strong laws that abide the mining operations any company may be permitted to commence its mining operations if only if it is abided by those laws and continue to respect the laws prior to the project commencement and during the life-time of the project operations. With regards to reporting of JIMAB and its project performance, they cannot escape collaboration like any other companies in Sweden. They are expected to conduct monitoring and auditing, as well as communicate about their result and report to county board annually. The county board will in turn review the monitoring result proposed by the company whether they are complying with the rule of the laws and regulations. Ultimately, the company is required to show green light towards CSR and sustainability performance during the project life-time. However, he did not mention about CSR and/or sustainability issues and/or its management practices and frameworks to be adopted by the company and about how the monitoring and enforcement plan could be carried out in the context of Jokkmokk project case on its website.

One other expert, Mehl (Interview, 2014) had a different opinion concerning the practices and management issues. In principle, he agrees with the idea that the mining projects initiatives may have positive impact on the economy, which in turn may result in positive impacts on the community and the people. However, there may not be positive legacies left for the environment. Accordingly, he responded that the company’s investment or infrastructure development may be good for community, though its benefit for the local people is minimal and limited. The roads to be built are also less important for the local people as they are built for the company’s operations and facilitate the mineral transportation to its destination. Besides, Mehl mentions that due to various reasons relating to handling the cases of the local people, for example, the majority of Saami people, say between 80 to 85 percent are against the mining venture. One main reason he mentioned about Saami is that they may not be benefited from the so called job opportunities as they are semi-nomadic people. Thus, they rather depend on reindeer herding, and they are not accustomed to sedentary life style. In this respect, Saami people want to keep up on the traditional reindeer herding, and continue with their cultural and historical heritages.

Furthermore, Mehl marked that the definition ‘Saami’ is the other challenge to be resolved. This means that the issue who is and who is not Saami is one other ultimate answerable question to be handled because the politicians still did not agree on this matter. The typical Saami, however, is characterized by his or her way of life and style. In actual fact the typical Saami is the one who is working as reindeer herder, though there are few who are earning their living as hunters and fishermen. Nevertheless, the Saami who are characterized as
reindeer herders are strongly against the mining operations because they strongly believe that mining interferes and impacts the reindeer husbandry and their cultural heritages apart from small groups of Saami who are engaged in other activities and are absorbed by the larger society. Most of the local Saami may not be benefited from the job opportunities by the mining company. And hence, all this issues need to be well addressed and managed and communicated by the company in relation with other pertinent stakeholders prior to the start of operations of projects.

In the context of the practical approaches and management of CSR and sustainability issues, the anonymous person from Luleå (interview, 2014) suggested that the local communities and local people issues are not well addressed and managed by the company at all. Rather it is difficult for him to believe that the company addresses the environmental and social issues of Jokkmokk communities and indigenous people, especially the case of impacts on the reindeer herding. He also mentioned what the company says about that “There are no local people”, they (company) also denies “the existence of Saami” let alone to recognize them as one important stakeholder. He also mentioned that they deny the existence of Kvikkjokk, the most beautiful natural park and wilderness with its untouched, pristine nature of national importance which is found nearby JIM’s Projects site. He also revealed that the company people are using primitive tactics while treating the local people. As to him, it is neither environment nor society is well addressed and managed regionally or locally by the company so far. Thus, he suggests that it is better for the company focus on addressing and managing such sensitive and important issues prior to the commencement of project operations.

5.1.5 Perceptions and Visions of the Future

With regards to the perceptions and vision of future development of the Jokkmokk municipality and the region in relation to the Jokkmokk (Kallak) Iron Mines projects various responses having marked differences and various reasons have been suggested by the respondents. When Professor Björn Öhlander (Interview, 2014) asked if he thinks concerning future development of the area, he responded in the way that he believes that the currently existing way of life of the local people is more precarious and mediocre. And hence, he is supporting the JIM Projects initiatives as it is promising for the future development of the Jokkmokk municipality and regional development. He also has positive views that the projects in this area create better opportunities for the development of the economy and society at large, though some groups who are considering themselves as stakeholders have been against mining operations in the Jokkmokk. He also explains that the environmental and social issues are identified and well-addressed from the project inception up to now.

It is also anticipated by Öhlander that the mining development may play pivotal roles in the reduction of the in-migration of the younger generation to other parts of the country and thereby its contribution to the GDP, as well as generation of government revenue. He also argues that even if environmental sustainability and mining does not seem go hand in hand or mining seems paradoxical, it brings positive change for the society in terms of job opportunity and infrastructure development. Thus, the future need of mining and mineral development is of supreme importance as far as the economic development is required for sustenance of development for the local people, as well as supplements the economy of Jokkmokk and surrounding communities and region in general. As to him the positive legacies that the mining leaves for the society is comparatively more important than the adverse impacts that the mining operation induces on the environment as he assumes that is minimal.

For the same question raised above regarding the perceptions and vision of the future development of the Jokkmokk and the surrounding communities, Wolfgang Mehl (Interview, 2014) responded in the sense that he supports the Jokkmokk Iron Mining projects as far as the
economic development is required for sustenance of society and the local people. As well as the mineral mining supplements the economy of the municipality and the region. Nevertheless, he has some point of reservation in case of the associated future challenges and long-term potential threat and risk of mining in context of sustainability. As to him, mining does not seem go hand in hand as this concept is paradoxical apart from what is heard in connection with the concept of sustainable mining which probably has been cited in the Canadian mining venture. He debates that even if mining in this particular case is important in terms of short and long-term economic growth it leaves no positive legacies for the future environment. It similarly leaves no positive effect on the cultural heritages of and cultural landscapes and mountains of northern Sweden; as well as the community, and local people, Saami.

It is also perceived by Mehl (Interview, 2014) that sustainable development is not a matter of short-term goal. In the context of short term development say, for example, that only would be sustainable during the next 15 to 20 years or so, one may conclude that the interests of the contemporary generations are justified. In the case of long-term development that would last 60 or more years, Mehl does not agree by the idea that the existence of this firm can bring about change for the Jokkmokk municipality, society or local people for two reasons. One reason is that mining related job opportunity to be created by the relevant company in Jokkmokk is very minimal and temporal. As the result it might not be possible to retain the younger generations within the Jokkmokk, and prevent the young people from migrating to other part of the country. The other one is that it does not seem the projects’ vision and mission is in line with the principle of sustainable development or environmental sustainability. This means that the JIMAB may not able bring about the required sustainable economic and social development in line with environmental protection. Furthermore, when considering the future destiny of the area and people, he claims that he does not agree with the idea that the company is caring about the environment or the future generations. It is rather the future outcome of mining areas in mountain region of Arctic in northern Sweden and its problem is left to the coming generations because costs will be transferred to the future generations. Besides, Mehl responded that JIMAB has no plan of action and decision making based on CSR/sustainability framework in a way as to communicate its information and nonfinancial reports or CSR/sustainability performances.

In this respect, Mehl (Interview, 2014) has a perspective that any kind of development including mining operations that may be initiated in Jokkmokk areas ought to create lots of job opportunities for the local people of today and should be designed on long term-basis in the sense that to accommodate the future generations labour force. Any development including mining to be initiated also should be in line with the principles of sustainable development because such kind of development is not supposed to lead to severe and long-term impacts on the environment and society. In order to minimize the extent of dilemmas it might be good if the positive impacts may balance out against the negative impacts in order to bring about sustainable development entailing of corporate social and environmental responsibility. One good measure to be taken towards achieving the goal of such a development is that companies have to assume some form of ethical and legal responsibilities to the coming generations. One other measure to be considered while realizing sustainable development would be to have great concern for the lives of future generations through protecting and conserving natural resources including the preservation of nonrenewable resources.

Furthermore, the anonymous respondent (Interview, 2014) had his own view for the raised question regarding the future development to the areas and responded that he does not agree with the ideas of sustainable mining for some reasons. One good reason is that promoting and
enhancing dialogue among the pertinent stakeholders is not well considered. It is also suggested by him that in the context of future development it could be valuable and agreeable for company focus on consultation with all stakeholder and integrate development strategy for the mining activities of the company at planning level and design towards achieving sustainable development. However, in practice the company does not care about the environment and society at large. It is also anticipated by him that as a foreign-based company, it is not the company’s intention to protect the environment and societal development; and that is why the local people, Saami and NGOs/civil societies are always in conflict with the company. Finally, the respondent suggested that he would like if the company comes to reconsider the case towards discussing and maintaining its relation with important stakeholders. Particularly, anticipate and properly manage its relationship with the NGOs/civil societies, the communities and local people, Saami even if they are considered to be weak and few in number.

5.2 Causal Loop Diagram for Illustrating the Interaction and Consequences of Social, Economic and Environmental Impacts of the Jokkmokk (Kallak) Iron Mining Operations

The aim of this system analysis approach is to demonstrate, as well as interpret and analyze how the economic, social and environmental impacts of Jokkmokk (Kallak) Iron Mining projects and the governance presented in the study and their consequences are dynamically interrelated. As well as to depict how the inclusion of the paradigms of CSR and sustainability in planning and management of mining industry as this is important for ensuring long-term benefits for all stakeholders, as well the Jokkmokk municipality, communities and the local people.

With this perspective in mind, three different Causal Loop Diagrams (CLD) are constructed to support the results, the discussion and conclusion part of the case study. The first two Causal Loop Diagrams (CLD) are constructed to illustrate the socio-economic impacts and environmental Impacts of the Jokkmokk Iron Mines operations respectively. As well as their consequences in relation to the needs for effective regulations and directives and inclusion of CSR and sustainability in planning and decision-making prior to and during, and after the Jokkmokk(Kallak) Iron Mines’ operations. And the third CLD structure demonstrates the socio-economic and environmental impacts of the JIM projects operations and their consequences in connection with the paradigms of CSR and Sustainable Development.

5.2.1 CLD for the Socio-economic Impacts of the Jokkmokk Iron Mining Operations

In figure 7, The CLD demonstrates a more detailed outline of the socio-economic aspect in relation to the required economic growth in Jokkmokk municipality which is considered to be central variable relating other decisive variables like job opportunities, community and infrastructure development on the one hand. As well as high unemployment rate and in-migration and demographic changes within Jokkmokk municipality and the regional development in connection with the Jokkmokk (Kallak) Iron Mines projects on the other hand. And hence, the socio-economic impacts of the JIM activities in which the variables are highly interlinked as shown in the CLD structure. The more job opportunities and economic profits contribute to the more community and infrastructure development. This in turn valuably contribute in controlling the declining number of population in Jokkmokk due to the increased unemployment rate and decreasing and/or avoiding the situation of in-migration of the younger generation to other urban areas within Sweden.

The CLD structure is, therefore, comprised of several balancing and reinforcing loops which starts with explanation on how the global, regional and national demands for minerals and metals lead to increased mineral exploration, and increased mineral availability in connection
with the case of the JIM project initiatives (See loops R1 & B1). Although the economic profitability will be externalized as net wealth for the JIM AB, increased activity and productivity by JIM means increased sales which can lead to more economic profits (See loop R2). This in turn can bring about community and infrastructure developments which can lead to more revenue and the other way around (See loop R3) and growth in the house hold income of the local people and trigger more mineral exploration in the Jokkmokk. Notwithstanding increased iron production can lead to more resource depletion which can result in less mineral availability and less GDP and revenue (See loop B2).

The CLD also relates about how increased iron production creates more jobs which can lead to more government revenue; as well as revenues that may be obtained in the form of income tax and foreign capital inflows. It also depicts that more economic growth leads to more government revenue which can bring about community and infrastructure development in Jokkmokk including the regional development (See loops R4, R5, R6 & R8).

The more economic development in Jokkmokk is aiming at the possible goal towards creating more job opportunities and regional development and vice versa. This in turn triggers the need for controlling the number of declining population through avoiding the situation of high unemployment rate which is considered to be the root cause for the in-migration (See loops R7- R13, B3). As well as retaining the migrating population and bring about positive demographic changes in the long run within Jokkmokk through creating more jobs for stimulating the regional development and increasing the household income for the local people and improving their quality of life (See loops R14, B4, B5, B6 & B7).

Figure 7: The Socio-economic Impacts of the JIM Operations. Author’s own figure
5.2.2 CLD for the Environmental Impacts of the Jokkmokk Iron Mining Operations
The aim of this CLD structure is to visualize the overall environmental impacts of Jokkmokk (Kallak) Iron Mining project and how their consequences are dynamically interrelated, and analyzed in the context of the result part of this study and about how this triggers the need for effective regulation and directives and inclusion of CSR and sustainability in planning and decision-making as can be seen in figure 8.

The CLD structure, therefore, demonstrates that about how the demand for minerals and metals drives mining industry to produce more metals and minerals. And hence, as the iron mining project expanded more land is degraded, and more landscape fragmented. This will further cause biodiversity and habitat loss which leads to the adverse effects on the reindeer herding. The land degradation in turn brings about adverse effects on the reindeer paths and shortage of supportive foddering apart from the loss of habitat and biodiversity which triggers land degradation and fragmentation, as well as adverse effects on reindeer herding (See loop R1 & R2). Among the local people, especially Saami will be affected by the mining operation as their existence is tied to the reindeer herding activities. This will further affect their cultural identity and heritages and other related traditional way of socio-economic activities.

Furthermore, the mining activities also may result in direct or indirect impacts on the reindeer herding and the quality of life of the local people including the productivity of the labour force as these variables are interdependent and are tied to the household income of the local people. The more the household income for the local people mean the better standard of living, which in turn leads to growth in labour force which can contribute both to the income and quality of life of the local people (R3 & R4).

As the mining activities releases waste rocks and dust, emission from blasting and traffic/transportation have an indirect impacts, the noise and vibration will have a direct impact and causes reindeers migrate far away from the mining sites leaving their natural habitat. As well as cause other adverse effects with various range on the natural environment and the communities and local people. Conversely, this may have direct and indirect effects on the Jokkmokk Iron Mines’ activities. The biodiversity and habitat loss, impacts on reindeer herding, negative effects on the state of health and associated adverse effects on the quality of life of the local people is directly linked with the reduction of labour productivity. This also leads to a potentially severe outcome for the local communities and natural environment which may result in a detrimental effect on the reputations and financial performances the company itself (See loops B1, B2, B3, B4, B5, & R5).

Eventually, increased iron mining mean increased environmental degradation, air and water pollutions and increased effects on the loss of biodiversity and habitats, which in turn affects the reindeer husbandry and causes mental stress on herders and their families. As all these impacts the life support system of the local people create a need for effective regulations and directives for inclusion of CSR and sustainability in planning and decision-making prior to and during, as well as after the mining project operations.

Figure 8: The Environmental Impacts of the JIM Operations. Author’s own figure
5.2.3 CLD for Illustrating the Interaction and Consequences of Impacts of the Jokkmokk Iron Mining Operations in the Light of CSR and Sustainability

The CLD structure in figure 9 is presented in a more complex manner by having several variables in a way as to illustrate the Jokkmokk (Kallak) Iron Mining in relation to the various associated impacts and their consequences during and after the project operations. It also provides an overview about how the associated environmental and social impacts of the mining operations that could be proactively managed by integrating the principles of CSR and sustainability in planning and decision-making processes. As well as how tools like Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) and Design for Sustainability (DfS) would assist in anticipating, avoiding and/or minimizing mining activities’ adverse impacts (see loops 24 & 25). The structure is, therefore, comprised of several balancing and reinforcing loops regarding the Mining Company’s footprint. Thus, within the CLD lots of variables are aggregated in order to allow the model to be more easily analyzed and understood.

The CLD explains the interrelationship between the global, regional, and national needs for economic development which attributes to the continuously growing universal business development which is tied to metals and mineral exploration and accessibility (see loops R1, R2). Such practices also adhere to iron mining activities which may result in increased iron production and sales towards increased profits which in turn may contribute to government revenues in the form of tax income which leads to increased economic growth (See loop R7), though the accompanying economic profitability which is externalized as net wealth for the foreign-based company. A tiny part of the profit may be invested for economic development, community projects and infrastructure development programs in Jokkmokk. Furthermore, increased iron production and increased profitability may lead to further mineral exploration and investment in iron mining projects aiming at increased iron accessibility and productions and profits (See loops B1, R2 & R3).

Increased iron production and sales mean increased tax and achieving foreign capital inflows and exchange incomes which in turn can contribute to government GDP and revenue. Nevertheless, such foreign-based profit driven corporate practices of iron mining and development activities consequently lead to resource depletion and less accessibility. Increased accessibility means increased iron exploitation and mining activities (See loop B1, B2). Notwithstanding such a tendency of profit maximization is unsustainable and is against intergenerational and intra-generational equity and justice. On the other hand, as mineral accessibility increases, the universal business development increases relating to inovative technology, which in turn bring about improved corporate responsibility aiming at achieving sustainable development through harnessing the long-term economic profit which invites further wealth externalization, exploration and mineral accessibility (R20, R27 & R29). The ore grades declining result in less iron productivity which can lead to increased waste rock generation. This in turn triggers the inclusion of CSR and sustainability in planning which leads to increased economic profit and mineral exploration and accessibility to be accompanied by ore grade declining (see loops R21, R22 & R28).

Figure 9: CLD showing the interrelationship between economic, social and environmental impacts of the Jokkmokk Iron Mining and its consequences in the light of the paradigms of CSR and sustainability Principles. Author’s own figure
This declining of ore grade generates GHGs per tonne of product which can contribute to climate change that may bring about potentially grave outcomes for Arctic environment in Jokkmokk Iron Mining Activities.

State of Health of the Local People

Climate Change

Universal/Regional

Business Dev't

Demand for Metals and Minerals

+ Mineral Accessibility

Mineral Exploration

- Land degradation

Biodiversity & Habitat Loss

Landscape Fragmentation

+ Tax Income

GDP & Government Revenue

+ Economic Profitibility

Impacts on Reindeer Herding

+ Job opportunities

Improved Corporate Responsibility

Household Income for Local people

+ Quality of Life of the Local People

- Resource Depletion

- Inclusion of CSR & Sustainability in Planning & Decision making

Declining Ore Grades

Innovative Technology

Economic Growth in Jokkmokk

Population Growth in Jokkmokk

+ Cultural Identity

Community and Infrastructure Dev't

R5

R4

R6

R2

B1

R13

R3

R15

R1

B2

R21

R22

The Need for Management & Regulation

Globa, Regional, National and Local Implications

Stakeholders' Engagement

Externalized Wealth for Beowulf Mining Plc (JIM AB)

Regional Development

Social Accountability & CSR Reporting

EIA/SIA & DfS

Sustainable Development

Iron Production

Iron Sales

R10

R24

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the future unless harnessed by inclusion of CSR and sustainability in planning and decision-making (R23).

Increased iron production activities mean more jobs to the local people and contribute to government revenue and the economic growth, as well as stimulation of development programmes for local youth in Jokkmokk and regional development in a way as to culminate the existing in-migration of the younger generation to the other part of Sweden. Nevertheless, some argue that it is unrealistic as the number of job opportunities that have been promised by the company is very minimal and temporal and may not be able to sustainably solve the social impacts and local unemployment problems. While others, especially some people within the municipality and the county contend that increased mining projects lead to increased investment on the community development projects. This also may be decisive for boosting up the regional development in the long-run in order to satisfy the household income of the local people. As well as solve the social impacts of in-migration problem in the region through controlling the number of declining population; and avoiding the situation of high unemployment rate and creating increased job opportunities (See loops R4-R14 & B3).

When considering the environment, it is obvious that the more iron mining expanded and produced mean the more land is degraded, and more landscape fragmented which in turn result in adverse effects on the reindeer husbandry, as well as the biodiversity and the loss of habitats (See loops R15 & R16). Furthermore, the mining activities also may result in direct or indirect impacts on the reindeer herding and the quality of life of the local people including their cultural heritage and traditional way of socio-economic activities as discussed above.

As the mining activities are expanded various hazardous substances will be released to the surrounding, which in turn are capable of causing adverse effects with various ranges on the natural environment. As well as pose health effects on the life of the local people and aggravate climate change which may cause risks of shifts in in Arctic ecosystem and loss of biodiversity. Eventually, increased iron mining mean increased environmental pollution and degradation like, for example, air and water pollutions and increased effects of climate change. This in turn will have adverse effects on the labour productivity and the Jokkmokk iron mines activities, as well as the quality of life of the local people and the household income of the local people (See loops B4, B5, & R17-R19).

The need for effective regulations and directives for inclusion of CSR and sustainability in planning and decision-making, as well as increased global, regional, national and local implications may further result in increased acceptance for CSR and sustainability in planning. This in turn requires stakeholders’ engagement in order that companies consolidate and expound their businesses. More effort towards improving their decision-making and achieving excellence through improved corporate responsibility which can lead to sustainable development entailing improved social accountability and CSR reporting is also essential. Such an approach generates economic profitability for the company in the long-run, as well as ensures long-term benefits for stakeholders, as well as communities, the local people and contributes for increasing economic growth in the Jokkmokk and enhancement of regional development (See loops R26, R27 & R29).
5.3 Analysis of the Impacts in relation to the Jokkmokk (Kallak) Iron Mining Operations

Mining is traditionally one of the most impacting sectors of the natural environment and capable of involving both destruction and development. When considering its positive impacts in the context of the JIMAB, it is well-thought-out that it will play an active role in the socio-economic development. On the one hand, it will serve as providers of valuable non-renewable natural resources, as employers, as investors and increasingly as developer of countries’ economy and infrastructure. On the other hand, it may be considered to be central to efforts to tackle problems of social governance in the face of economic crisis and social problems such as lack of social services and the spread of unemployment and in-migration to other urban areas of Sweden. JIMAB is, therefore, expected to play key role in enhancing economic development as it contributes to more government revenue in the form of income tax and foreign capital inflows which can bring about community and infrastructure development in Jokkmokk and regional development.

Nevertheless, the past experience of mining in some areas within Sweden and worldwide revealed that mining industry has had potential threats to the environment and faced with serious challenges and problems in this regard. Mining industry being one of the most impacting sectors has brought about serious degradation and pollution on the land and landscape, water and air quality and on biodiversity and habitat. Similarly people expect that such kind of pollutions and degradations will happen again and again. This in turn trigger a potentially grave outcome for the local communities as it poses adverse impacts on the quality of the health of the local people and environment in the future. Particularly, in the context of the reindeer herding in Arctic, for example, northern Sweden the pressure is increasing in the sense that the grazing land is shrinking gradually due to exploitation of land for hydropower projects, wind farms, mining development and other competing business activities. Various studies reveal that the reindeer herding activity is much disturbed as the result of the difficulties attributed to reindeer migration over land and attacks by predators, which in turn has caused mental stress on herders.

Furthermore, there are still people who are suspicious of the newly initiated mining projects like in the case of Jokkmokk (Kallak) as there can be latent and unpredictable impacts associated with them and the consequences that can arise from project planning and operations which can lead to irreversible and overwhelming changes and effects which could be seen afterwards or their long-term effect may also be imperceptible. And hence, addressing and managing the controversial issues of mining and finding adequate solution for the problems due to both anthropogenic impacts and natural disturbances through balancing out the powerful business and government and societal interests in the Jokkmokk municipality and region is important. This in turn is expected to create new opportunities for mineral prospecting and achieving long-term profitability through integrating CSR and sustainability issues and emphasizing the environmental, human and social values in Arctic and national policies which are subject to debates.

With this perspectives in mind, a more responsible and careful mining and mineral development entailing of economically viable, socially responsible and environmentally sound plan of action and strategy need to be realized prior to implementation of the JIM Projects. Besides, enhanced management practices and approaches based on the norms and ethics, and national regulatory and governance system is required in order to avoid and minimize the associated adverse impacts on the natural environment, community and the local people, Saami and maximize the positive impacts and legacies that the mining leaves for the society at large.
6. Discussion

This section discusses the impacts associated with major mining operations as it is expected to answer the above portrayed research questions which concentrate on the environmental and social impacts connected with major mining operations in Arctic region. This section deals with the impacts of mining in the Arctic region and comparison between the countries of Arctic/subarctic like the North American and North European countries attributed to different management approaches and practices of CSR and sustainability issues; as well as about how these issues are handled and information are disclosed in some countries of the Western world. Based on the varied opinions and viewpoints of different scholars pertaining to the impacts and consequences of the mining industry, as well as CSR practices and management are compared and discussed. It also thoroughly discusses about how the CSR and sustainable development issues would be handled and communicated in Jokkmokk (Kallak North) Iron Mines case founded on some important answerable questions of this research and the aim of the thesis.

6.1 Environmental and Social Impacts of Mining in the Arctic Region

When considering environmental impacts in Arctic and subarctic regions, extractive industry assert threats to these regions because the ecosystem in this environment like, for example, mountains and Arctic environments are highly sensitive and/or rare. One main distinguishing trait for Arctic region and its ecosystems is its peculiarly low temperatures and short seasons exhibited for their growth and development. One other reason that describes the Arctic ecosystems is that it reveals an insignificant number of species of flora and fauna as compared to lower altitude regions. Arctic species are often highly susceptible to pollution and human-induced disturbances. And hence, these limited number of species in this environs like, for example, commonly lichens and mosses are amid the most susceptible species to vanish as these are ascribable to anthropogenic pollution and impacts inflicted on them. Likewise, mining development in Arctic may aggravate permafrost degradation as it is susceptible of extending the disruption far beyond the initial region. The main causes for such disturbances are an exceptional ice melting, decline in soil quality due to degradation, and formation of water by impounding. In addition, it is difficult for the Arctic to recover from pollution and degradation in the short-run as the biological processes in this environment are very slow. Handling of some mining wastes also becomes more difficult during winter season due to lack of sunlight.

When it comes to the impacts on society residing in Arctic, it has been discovered that due attention is not given to the associated impacts of mining and energy venture continued in the north. The consequence of the extractive industry has been outlining a history of disaster that exemplifies the boom of economic development at the expense of increased resources consumption which is followed by a sever destruction of the area. This in turn has resulted in a more severe damage on the inhabitants of the vicinity and their environment than in the past. The promises made by the resource dependent societies of the south with regards to the benefits of the local people have been found to be ephemeral as opposed to what have been documented to be achieved. This made the social damage in Arctic and sub-arctic continued to be worse. As these settlements are established in harsh landscapes have little contact with the world, which in turn have caused to have fewer options in the economic development. Even though the reindeer herding overwhelmed and disrupted by industrial intrusion, this

often tends to make a choice for the traditional livelihood of northern society more meaningful related to economic endeavor\textsuperscript{47}.

Thus, mining industry ought to learn something from past failure in the contest of mineral development venture. Mining based on appropriate planning and corporate environmental management for large-scale resource development projects is of supreme importance towards ensuring environmentally sustainable development that can create better opportunities for the company and society and/or local community and people. So that all stages of mining venture from the inception to the exploration activity, through to operation and exploitation, and decommissioning or demolition may require impact anticipation and proactive pollution prevention. By doing this the company may mitigate and avoid risks of severe or permanent environmental damages and prevent environmental degradation by bearing in mind that the precautionary measures to be adopted. The present generation should ensure that mineral working is carried out in the way that the wellbeing, variety and output of the environment is preserved or developed accordingly. This gives the opportunity for the future generations use sustained resource base alongside improved valuation and pricing of environmental resources.

In the mining venture, therefore, the public and community should be consulted or informed through disclosing information about mineral operations and reporting based on internationally accepted management frameworks and codes of conducts and standard systems. This in turn could be important for mutual benefit for the company and society as such actions contribute to the improvement of the corporate operations through engaging and managing the pertinent stakeholders. In this sense, countries of the Arctic regions should revise their regulatory system and test how much is strong enough to save the environment and the general public, especially the community where mineral working takes pace. This can be implemented through imposing the transnational corporations (TNCs) to be in line with the internationally accepted yard sticks and abided with the national laws of the country where mineral prospecting occurs. Another important measure to be taken into account is assessing the potential impacts that may bring about both positive and negative impacts on the environment in the area where the mining venture will be undertaken. Besides, weighing through analyzing the economic and social, environmental features, monitoring of every single stages of its operations, and evaluating the licensing and permit issues prior to mining commencement is of vital importance.

It is, therefore, inevitable to put in place a strong and appropriate instrument that enables the mining venture be liable to major inspection bounded by a relevant regulatory frameworks. Such frameworks are able to regulate mining reclamation and abandonment. Other frameworks of supreme importance include hard laws for protecting the natural environment based on proper assessment of environment, as well as air and water permitting guidelines for something emitted. Moreover, multiple projects like in the case of Jokkmokk Iron Mines (Kallak North, Kallak South, and Ruoutevare) and other mines which may be expanded in the future in Sweden within a similar area may have cumulative effects on the environment and society at large. And hence, such kind of cases may require the management of cumulative impacts. This in turn initiates regulatory organs set suitable thresholds for preserving and sustaining the biodiversity and ecosystems in the Arctic region of north Sweden where healthy aquatic and terrestrial ecosystems with fewer plant and animal species are exhibited.

6.2 Comparison of the European and American CSR Practices and Management

When considering the dual view of CSR in Europe and America as consisting of explicit and implicit elements one may have a better understanding and provide descriptive model of CSR. Such model further creates better path towards a more speculative inquiry in the context of CSR agenda. Traditionally corporations in the US have a tendency that the largest parts of public matters are concerned with CSR policies that appeared to be explicit. Nevertheless, it does not mean that there are no implicit CSR policies which are necessitating regulatory frameworks in connection with issues of worker’s right and trade union roles. In contrast, in a European context the concept of CSR takes different form in a way as to address issues which have traditionally been an implicit part of the cultural, social, political, economic, and legal frameworks interests. In Europe, even if implicit forms of CSR policies are and have been dominating, there are often considerable extents of CSR that are explicit and realized to have a particular appearance of philanthropic responsibilities. In general, more explicit CSR strategies have been adopted by companies in US, thus resulting in a weaker institutional framework. In Europe, on the other hand, companies have adopted more implicit corporate policies and strategies for CSR, among other reasons because institutional frameworks for socially responsible business action are more developed there (Matten & Moon, 2005; see Appendix 1.6).

Aaronson and Reeves (2002) also have perceived and put forward their comparative analysis on CSR tools between the European context and the North American context. They also analyzed the differences between the European and the North American and the major steps taken by them while promoting CSR. Accordingly, it is discovered that companies in Europe have shown green light towards promoting CSR based on the development and acceptance of roles adopted by the European governments. In the contrary, in the case of the US, it is exhibited that there is less effort in promoting CSR in the companies found in the US. They also defend the idea that the European governments are more progressive as opposed to the American in the development of CSR as these governments are more cooperative with several corporations than what is shown in the US companies with low level of acceptance of CSR public policies, though these differences lies in their respective business cultures.

Aaronson and Reeves (2002) put these differences in this way: In the last few years, the policymakers in Europe have been made great efforts to advance CSR in comparison with the US which is lacking CSR policies. The ineffectiveness of policymakers in the US in addressing CSR is quite astonishing since CSR pressures are more prevalent than anywhere else. What justifies the inconsistency? Some claim that the public pressure could be one major factor. Violent anti-globalization movements were also evident in the Western world like Europe, Canada and the U.S.A. in the recent past. The existing market condition also might be taken as one other force. Thus, if the pressure from the public or from the market origin is inadequate for the justification of such controversial issue what substantial reason can be put forward? We could justify this fact in terms of culture of business. Corporations in Europe are agreeable to work with state for enhancement of the social settings, and they are also keen to stay in circumstances where the environmental rules are well followed. Business assumes that state requires them to play their game within the set rule, and yet the request for more business is pivotal for the state. The cause for the approval of a government responsibility in addressing CSR by European should not be misinterpreted as public support imposing an obligation on CSR policies. The public and an increasingly high number of businesspeople in Europe underpin the prevailing status of research practices both at transnational and domestic level. Also, powerful business executives agree to take that CSR policies can guide them like a beacon in such disordered persistently changing global economy.
In addition to the absence of a distinct and universally recognized definition of CSR, it is understood that there is no a commonly approved magnitude for evaluating, managing and reporting of CSR worldwide. Tschopp (2005), therefore, noted that even if Europe seems to have comparatively high progress in its movement in terms of CSR issues, both commissions of the US like Securities and Exchange Commission (SEC) and the European Commission (EC) did not adequately fulfill their responsibilities in terms of mandatory regulation of CSR reporting. This is because by the 2005, the European Union (EU) has been adopting International Accounting Standards while the SEC’s initiative is sluggish to address the issue. The geopolitical atmosphere may be one of the conducive factors for Europe to focus on social and environmental concerns, unlike the US where capitalistic way of democracy dominated society prevails and the role of government is limited while taking actions and tackling both of the social and environmental concerns.

On the other hand, just as the areas of interest or concern varies from country to country, the management frameworks and standards and guidelines to report upon should be identified by corporations and decide to join the international organizations which suits them by focusing on their areas of concern and interest. And hence, Tschopp (2005) suggest that prior to reporting, the identified standards need to be adopted internationally by the authorized agency like for example the Board of International Accounting Standards. As there are differences in management frameworks and standards, the issues, interests of corporations and their area of concern may also varies widely. Different frameworks focuses on various issues like, for example, the ISO14001 standard emphasizes principally on real issues of environment. The SA8000 certification specifically deals with labour issues. Both of GRI and AA1000 are distinguished for addressing the entity of triple bottom line. With these management frameworks and standards in mind, companies in the US were compared with those companies in the EU so as to determine the level of compliance by nations engaged in these matters. The data revealed that the extent of progress in Europe is much stronger than in the US. Nevertheless, no matter what the result exhibits that there are differences in terms of their movement no one can reach to acceptable conclusion based on these inadequately given data. And hence, more researches are required to adequately end the comparison with a definitive conclusion in this regard.

6.3 Environmental Impacts of the Jokkmokk (Kallak) Iron Mining Projects and their Consequences

By using system analysis approach the associated economic, social, and environmental impacts of the Jokkmokk (Kallak) iron mining activities and its consequences presented in the result and analysis could be interpreted and communicated. The CLD in figure 9 above can be used as a tool for analysis and mutual perception of the mining impacts. As well as communicating it in the context of the CSR and sustainability in planning and decision-making apt to stakeholders’ engagement. So that improved corporate responsibility which can lead to sustainable development and generate long-term economic profitability for the company.

In this sense, the CLD may enable us comprehend and communicate the Jokkmokk Iron Mining project impacts as examined in the result and analyses section. As well as about how the adverse impacts on the natural environment like loss of biodiversity and habitat, the local people and community could bring about negative consequences without forgetting about the legacies that it leaves for social and economic development. The CLD also provides knowledge about the underlying theory and feedback processes. In this regard, Selman (2000) contends that many of the most pressing impacts environmental problems may be appeared to be global ones like climate change and pollution of oceans, it is essential to recognize that many of these have local origins. This may be because the cumulative impact of individual
actions causes positive feedback in the environmental systems. With this perspective in mind, we can easily see and comprehend the links between the impacts and its consequences in the CLD figure 9 above.

And hence, as the iron mining projects expanded more land will be degraded, and more landscape will be fragmented which in turn result in the adverse effects on the reindeer husbandry. For example, due to fragmentation vital reindeer paths will be hindered, which in turn compel herders move upon the mountain thereby avoidance of high cost required for supportive foddering for reindeers. Eventually, the move to the mountain would result in the killings of several reindeers by a high rate of predators there up on the mountain.

Furthermore, the mining activities also may result in direct or indirect impacts on the reindeer herding and their quality of life of the local people, Saami as their household income is directly tied to the reindeer herding activities. This in turn is interconnected with their cultural heritage and traditional way of socio-economic activities. As the mining activities release huge amount of waste rocks and dust, as well as noise and vibration which may further aggravate the harmful effects on the natural environment and directly impact the reindeer herding activity and pose stress and adverse health effects on the life of the local people, Saami.

One other implication of the JIM projects is that they are initiated and designed to be carried out with no return of waste materials to the excavated pits, or mine reclamation and rehabilitation or post closure monitoring program, though modern mining projects are designed and built to post closure. Thus, the absence of mine reclamation or mine closure and re-vegetation will cause a permanent alteration of the topography by creating huge voids everywhere around, visual intrusion, and long lasting changes of landscapes and local surface drainage pattern which tends to flooding, and poor land capability for agriculture, forestry and other socio-economic development activities.

As the JIM Projects are a medium to long-term projects, say 30 to 60 years, iron will continually mined, which in turn increase environmental degradation, air and water pollutions, and increased effects of climate change. These also may bring about a primary or secondary effect on the life support system of the local people unless and otherwise strong legislation and prevailing regulations and directives put in pace that enable the enforcement of the legal frameworks. As well as integrating the ethical codes of conduct, principles, guidelines of CSR and sustainability in planning and decision-making during and after the mining project operations. Increased global, regional and local implications may further result in increased acceptance for CSR and sustainability in planning which in turn call for stakeholders’ engagement. Moreover, improved corporate responsibility can lead to sustainable development and generate economic profitability in the long-run. Enhanced corporate responsibility may result in increased stakeholder engagement and management, which conversely contributes for the betterment of corporate responsibility. This causes further enhancement of sustainable development which can result in economic and regional development in Jokkmokk which can have positive impact in minimizing and controlling the in-migration of the younger generation to other part of the region in Sweden.

Increasing economic growth and sustainable regional development in Jokkmokk (Kallak) may require the mining company to work towards reducing the negative impacts on the natural environment, the community and local people. Conversely, the mining venture should play great roles in maximizing the substantial advantages that could be derived from their activities entailing to stakeholders and the environment. Furthermore, as the mining sites are located in environmentally sensitive areas of the Arctic region of northern Sweden and ecologically vulnerable areas of the Saami communities due attention is required in this regard. The risks of potential damage to the cultural heritages and traditional way of socio-economic activities
of the local people also need to be anticipated, mitigated. As well as proactively managed through integrating the real issues of environment and society into long-term planning and management.

6.4 Managing and Communicating CSR and Sustainability Issues of the JIM Projects

As far as management and communication of CSR and sustainability issues concerned, the JIMAB has to create a robust and accountable management framework, and/or standards and guidelines. These frameworks and standards should be identified and put in place by the company itself in the way that to ensure that how they can be implemented reliably throughout the project operations. It should also declare the type of management frameworks/systems that the company is going to use while reporting its activities to those stakeholders cited on the company’s webpages. With regards to its stakeholders, it is stated that there are some interested party to whom the company has certain responsibilities like the employees, the general public, public authorities, landowners, and other concerned parties. However, the company should clearly identify the pertinent stakeholders, especially those unidentified and grouped as ‘other concerned parties’ who are affected by and who affect its activities. Here, it is important to concentrate on the diverse opinions and viewpoints of the important stakeholders towards the company’s concern for the environment and society. Other points to ponder are company’s ways of management practices and its nonfinancial performance reporting in the light of the CSR and sustainability issues starting from the project inception up to now, and about what is going to do in the future in the context of the main areas CSR and sustainability issues.

One fundamental constituent of substantial environmental regulation is the capacity to make polluters and poor performers accountable for their damaging actions. Even if several countries worldwide have a well-established legal frameworks that enables them alleviate the associated social and environmental impacts caused by the extractive industry, they are unable of putting their laws and policies into force and effectively monitor their performances (Galloway, L.T. and K.L Perry, 1997). Consequently, (Clapp & Dauvergne, 2011) suggest that in the context of international politics of the environment considerable attention has focused on TNCs because most of these environmental and societal groups argue that voluntary measures of CSR are wholly inadequate and that a legally binding agreement with teeth is required.

And hence, JIMAB as a resource-intensive mining company is expected to develop an understanding and ways of managing impacts (social, economic and environmental) by assuming certain valuable practical approaches in planning and decision-making in connection with its activities in general. It should have a minimum understanding of the main areas like vision and mission, stakeholders, sphere of work and processes, impact on environment, and social accountability. All of these need to be included in CSR by identifying and prioritizing the issues alongside making positive impacts on the society and environment and economy. This in turn has to be based on a robust policy and strategy enabling business firms fulfill their obligation pertaining to economic, environmental, and social components in keeping with the goals of familiarizing the principles of sustainability within firms. The company declared on its official website that it fully supports and will adhere to the ten principles established by the International Council of Mining & Metals (ICCM) (see 48).

Appendix 1.2). However, beyond that it should integrate the ICMM principles in its practices and more than that it is expected to be abided by important ethical codes of practices in line with the major international frameworks and management standards and guidelines. This in turn may provide an opportunity to distinguish and highlight socially responsible actions given that CSR is one of the greatest opportunities for business differentiation. The company would develop CSR on the basis of its own track record as CSR is a vision that allows a company to innovate, strengthen, consolidate, support and develop ways of operating that have come to form part of business practices. Particularly, the JIMAB is required to incorporate and apply the ICMM principles of actual relevance to indigenous peoples and project decision making like for example, Principle 3, Principle 6, and Principle 9. Furthermore, it has to be obliged to comply with the position statements by incorporating them into their operational practices.

The JIMAB in its website, under topic company’s ‘responsibility’ it is cited that “The task of the mining industry is to supply society with minerals and ore in a responsible manner and with long-term profitability.” However, this statement is ambiguous because the company’s iron ore or minerals supply is destined to export markets outside Sweden and it has no intention to supply iron to the Swedish society. The short and long-term profits are also to be externalized as the company is foreign-based. In this respect, it is not clear about which society they are supplying for and referring to. Besides, there is nothing mentioned about its vision and ways of managing and communicating its activities apart from its tasks. JIMAB, as operating company declared that it fully supports and follows the values and situation declarations undertaken by the ICMM. Nevertheless, there is nothing mentioned on their webpages, about how their policy objectives will be fulfilled and how the company attempts to accomplish its tasks based on the cited regulatory frameworks and environmental norms. Besides, it is not mentioned about how the business firm is addressing the CSR and sustainability issues and integrating it in its early design phase and processes of pollution management and environmental health. It is also not explained about how to proactively manage the harmful effects of mining or pollution on the environment and the local people through integrating its own corporate social and environmental responsibility vision, strategy and programme.

When considering the management and duties of the mining industry, however, the company should not focus on the goods and services that it provides only. Prior to that it has to deal with the impacts of the firm’s undertakings have on the environment and society. It should also address and handle the social and environmental issues that have to show that the social and environmental responsibility is the whole lot as far as business activity is concerned, not only a matter of profitability or community investment. Secondly it should be noted that investment in community programmes is integral to company strategy. Likewise it has to be well-emphasized by the company that the most ultimate part of social and environmental responsibility is to manage the business in a proper manner. One other important objectives of the company is that to offer job opportunities to the local people to earn a living apart from making donations and other developments pertaining to social services.

In general terms, the company needs to undertake its socially responsible tasks cost-effectively, profitably, safely and legally. It also needs to identify and minimize the social or environmental costs that might be inflicted during and after the project operation to a least possible level in the surrounding. Nevertheless, it seems that this issue is requiring special

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attention as Beowulf Mining Plc. is a foreign-based company operating in environmentally sensitive and controversial Arctic region in Sweden. The other important task that the company should concentrate on during project operation is not just about the whole of minimizing the company’s adverse impact. It is rather about bringing about a positive impact as it is a matter of utmost importance, though such task is hard for cost-conscious mining company. The mining company should also be responsible even if it is difficult to make it responsive as its managers are primarily looking for profits and aiming at cost-saving related challenges with yearly performance target to meet.

6.4.1 The Various Perceptions Generated in the Context of Impacts of the JIM Projects

Comparing the Positive and Negative Impacts

Selman (2000) describes minerals from planning perspective by referring to Stevens, Sir R (1975) as the most important category of nonrenewable natural resources because of their sensitive characteristic features which comprise of the fact that mineral working is a transitory activity and simultaneously involves both destruction and development. Other features that make mineral working special is that it entails workings which are an end in themselves, rather than as a foundation for superstructures. As well as can only take place where a mineral is located, so that planners have little room for maneuver in influencing location. The last one is that it is subject to changing economic conditions during the life of a mine, perhaps making it subeconomic, whilst social expectations may vary over its lifetime, rendering it more or less acceptable to local residents and wider environmental interests. Nevertheless one can observe that abandoned mines as events within the living memory of the past landscapes are supposed to serve as additional witnesses about how old and deserted lands are changed in negative direction. In this regard, human endeavors from several years ago continue to have environmental impacts in the present day. As a result any mining company is supposed to face certain negative public perceptions and mistrust. This is due to deep instilled perception that extraction companies have no or least concern for other stakeholders and the environment. This kind of outlook is reinforced in the public mind by pictures of abandoned mine sites, unsightly tailing ponds and slagheaps, for example one can see the recent mining impacts in Jokkmokk50, and one can find more pictures and videos on the adverse impacts of mining endeavors on the environment at global level in the internet.

It was also reported that while the majority of the inhabitants in the community of Jokkmokk that got interviewed on the effects of company’s plan of mine and responded that they want the mine. As the mining industry provides the required raw materials for the well-functioning economy, it is supposed to leave positive legacies for the society. The positive effects could be in terms of job opportunity, investors and money aiming at reducing the number of unemployed people within the locality and the region. Nevertheless, as to the report this area for prolonged period of time has been severely hit by high levels of unemployment and high numbers of in-migration to other part of the country. When considering employment opportunities, it is proclaimed that the mine is supposed to create job opportunity for about 400 people in the locality during its operational life time of about 30 years for the mining project as it is mentioned by JIMAB (Granqvist, 2013). Nevertheless, later on it is mentioned that the Kallak deposits could prolong the likelihood of the mine over the next 60 years as to the Report of Iron Ore Market Report for Beowulf, Mining Plc51. Apart from the job opportunities, it may have positive impacts in terms of infrastructure development and contribution to economic growth, as well as local, municipal and regional development.

50 Saami Resources: Mining impacts: http://saamiresources.org/mining-impacts/
Nevertheless, Warhurst and Mitchell (2000) argues that as mining gets highly automated and technically sophisticated with time, and thus only limited number of labor forces is required. This in turn makes less the immediate benefits for the local communities from mining along with the inadequate roles to play by the local stakeholders.

A 62 years old man whose name is Kjell Ek, who is a non-Saami local strongly supports the plan of mine in the area. Ek argues that the mining industry is decisive for the futurity of Jokkmokk. Furthermore, he thinks that the problem of in-migration due to unemployment and the associated continuous declining of population in the past 50 years will continue and gradually cause the society die out unless the problem is resolved with the help of certain prospective investments like mining. He also assumes that reindeer herding alone never brings the required change for the survival of the people. In the contrary, Jonas Vannar, one of the lifelong Saami reindeer herder and an opponent of the mine, from Sirgus community, supposed that the only fortune he has is his herd, and therefore, what he and his fellow people require is that to access to all of their land for reindeer herding. Vannar is fearful and think that if the Kallak mine is built and mineral working started, their survival will be in question as mining affects their day today life and work. He also believes that they will be left alone without means. That is why they are afraid of the infrastructure to be built and the mining activity would have adverse impacts which cause their life uneasy. Furthermore, Vannar stresses that all the massive mining structures and its activities would block two major paths to be used by the reindeers during summer and winter seasons as one major problem.

By taking the positive and negative impacts raised above related to the interests, concerns, perceptions of rights, and expectations of stakeholders into account, the JIMAB has to be prepared to manage through anticipating and mitigating the most probable negative impacts of the mining operations. In this regard, managrs need to have developed a fairly optimistic insight towards CSR and sustainable development. This is because the two approaches are often improving business practices, or at least not damaging their performances in a way as to work towards sustainable economic development. They are also perceived as beneficial due to the positive impacts they have on the corporate image and stakeholders’ satisfaction. And hence, as the more the company invests in CSR and implements it, the more they understand the economic advantage to be gained from CSR in keeping with the local, regional, nationwide and global visibility. This in turn triggers assistance from the state and promote the welfare of the local people and communities. It is also supposed that the ‘softer’ benefits which are in fact intangible and unmeasurable may be translated into objective and easily measureable ‘hard’ benefits. Such kind of benefits is supposed to be durable and more certain as most businesses’ long-term primary targets are profits and sales returns. In this sense, the integration of CSR and its application contributes for attaining JIMAB’s long-term financial benefits and the legitimacy of the company itself.

### 6.4.2 The Economic, Social and Environmental and Legal Aspects Related to the JIM

The overall aim of the Swedish Environmental Law is to advance a “sustainable development”, including not only promoting protection of the environment against pollution of different kinds and nature conservation, but effective management of available resources like land and water areas, and other economically feasible resources occurring in nature and

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energy. However, when it comes to mineral planning and management one of the most difficult environmental considerations is that of interpreting ‘sustainable development’. This is because normally this term relates to resources which are intrinsically renewable. In recent time, the economic drive and the need for metals worldwide and in Europe including Sweden is increasing. Due to the slow economic development and other factors like the financial crisis and escalating unemployment rate in the northern Sweden makes mining and minerals working more acceptable. This is due partly to the fact that there are no profound regional development and as a result minimal incomes generating mechanism for other local people in Jokkmokk municipality and surrounding communities. And hence, on the local government side it is believed and agreed that mining and mineral development is leaving positive legacies for Jokkmokk municipality, local communities, county and nation in general. They also argue that social development can be enhanced when the economy of the region develops.

In this sense, in the context of its economic contribution the JIM Projects is one of the biggest projects in Sweden. The mining operations is, as discussed above, however, supposed to have a risk of potential damage on the natural environment and intrusions on the traditional way of socio-economic activities and cultural heritage as these sites are located in environmentally sensitive areas of the Arctic region and ecologically vulnerable areas of the Saami communities. Consequently, the mining operation has caused anti-mining movement as it has got great attention and visibility from secondary stakeholders and observers like the mass media and academic circles, as well as from the international community. There were also opposition from local communities and the Saami people, as well as some of the environmental groups and community activists in Sweden.

When considering the case of Jokkmokk (Kallak) in the light of the existing legal frameworks, it is quite difficult to comprehend the case due to the fact that the Swedish Environmental Code recognizes it as the area where it has been put aside as areas of interest of the Swedish government for reindeer herding and mining. For example, in the Mineral Act, exploitation concession, it is emphasized that the exploitation must be in accordance with the provisions on efficient management of land and water resource areas in chapter 3, 4 and 9 of the Environmental Code. However, this provision is rather complex and ambiguous as this seems to hinder mining in areas of “national interest”, for example, for nature conservation and reindeer herding, but in case of conflict, there is often a balancing against the mining interest. This means that there are certain areas are of “national interest” with respect to the mining deposit. This is because mining look as an industry of national importance, though mining in principle does not conform to environmental protection, and as it has potential risks to pollution of land and water, air and causes noise pollution and difficulties to conservation of nature (appendix 3.2).

In this respect, if it is of interest with regards to the mineral deposits and working that no EIA is required in connection with the exploration and permitting according to the Mineral Act which lacks environmental consideration. Normally there is no obligation to apply for a permit according to the Environmental Code. This lack of environmental influence is may be on the exploration stage is probably encouraging the public opposition and protest as this might cause loss of trust and confidence on the local authorities and the government. In actual fact just after the exploitation concession is granted to operator obviously this will be accompanied by the subsequent permitting in accordance to the Code as it has no effect to halt any project or plan of activities. In this regard, one can see that the mineral act outdated the

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55 Swedish Environmental Code, Chapter 1, section1(Appendix III)
‘environmental sustainability’ or ‘sustainable development’ by giving more emphasis and focus to the political goal as this is reflected in the Environmental Law as this should be decided first prior to the exploitation concession and other mining related matters.

Several research findings and studies demonstrate that a newly established company seems to focus, primarily, on their provisional economic accomplishment targets and endeavors. Of course, at a subsequent phase they tend to hold a strong view that enables them promote their continuing existence, in which sphere CSR may be allowed to play a significant role (Lindgreen et al.2009). In effect, as Beowulf Mining is a foreign-based company, it seems that the primary interest of it is more inclined to financial profitability rather than the social and environmental concerns. As it is cited in the above section, due to the fact that mining is considered to be a robber economy, in that a mineral deposit is a finite source and comes to an end when the deposit is exhausted, mining and mineral processing and beneficiation have an impact on the environment as opposed to the legacies that it leaves for environment.

As far as mining issues is concerned, any mining project raises serious issues with respect to environmental impacts, though mining and mineral exploitation is fundamental for economic development in any society. Indeed mining may be carried out until the point where it will be worthwhile mining; however, if it is continued beyond the threshold of the social, environmental and economic costs of extraction the problem surely appears. The major problems appears in the form of externalized costs of air pollution and water pollution due to releases of toxic substances to the surroundings. It further endangers the long-term effects of ecosystems which is capable of supporting our future survival on earth like for example, food production, clean air and water (Giurco & Cooper 2012).

And hence, JIMAB as a transnational corporation to make the company’s strategies and its corporate responsibility effective, primarily, its activities must refrain from causing permanent environmental damage during mining and mineral working now and in the future. In addition, it has to work towards achieving sustainable development in which the economic growth is consistently linked with environmental sustainability. In this way it may be possible to bring about economic development in harmony with environmental protection based on strategies for sustainability. The integration of design for sustainability (DfS) in mining is also of supreme importance as it takes economic, social, and environmental impacts and its consequences into account. Furthermore, the DfS targets towards producing substantial advantage for society, though minimizing adverse effects with the main focus of extracting the target mineral at the lowest possible capital cost and lowest risk.

6.4.3 Key Stakeholders’ Identification, Motives, Practices and Engagement of the JIM

Interests, Concerns, Perceptions of Rights, and Expectations of Stakeholders

There are a number of stakeholders identified in the Jokkmokk Iron Mines case, and therefore, they can be classified as primary and secondary stakeholders. In this particular case, key stakeholders of both the primary stakeholders of the Jokkmokk iron mines include the company (shareholders and investors) which has put forward its application to mine iron in Jokkmokk. As well as governments (public authorities/regulators, politicians at county and municipality level), local community and (the local people /Saami). The secondary stakeholders include groups like the general public(Swedish people), pressure groups like NGO and civic organizations, and local activists and media and academic institutions have a stake in the way the company conduct itself. With this perspective in mind, one can assume that corporate responsibility is the essence of good business in the context that a business firm influences its stakeholders’ economic, environmental and social circumstances, and vice versa.
Those once identified stakeholders are required to answer important questions like what are the company’s stakeholder’s stakes. Companies operating from a stakeholder perspective should identify groups to whom they are responsible, and attempt to understand and prioritize their needs. This has to be accompanied by stakeholder engagement as it provides systems for companies to assess the views of diverse stakeholder groups and respond to their needs, which in turn leads to management issues. However, the challenge of management is in distinguishing the inherent characteristics and lawfulness of stake(s) of a group and the authority of a group to affect the company (Carroll & Buchholtz, 2003). Although there are differences in the nature, legitimacy, power and urgency of the specific groups of stakeholders, there are certain important questions and things to be considered when it comes to managing stakeholders. Particularly, the management of stakeholders in relation to CSR and sustainability issues regarding the Jokkmokk municipality, the communities and local people needs due consideration. This is because as the company has its own power of influence and coalition based on some common interest. In the contrary, all stakeholders also have their own explicit interests, concerns, perceptions of rights, and expectations.

Moreover, the company has to engage its stakeholders through consultation and incorporating and their views concerning the JIM Projects operations and the futurity of Jokkmokk Municipality. The company’s identification of the nature and legitimacy of the power and stakes of the groups can be followed by identification of issues in relation to the stakeholder circumstances. The next step is evaluating and ranking those issues in terms of their significance to the company. And then, preparing answers to the issues it essential as it is followed by result assessment and monitoring. Carroll & Buchholtz (2003) also notes that business organizations are required to address the legitimate needs and anticipations of stakeholders if they are really in need of long-term recognition pertaining to identified stakeholders. It is because the practical action to take pertaining to ethical responsibility when the problem arises in the context of stakeholders is crucial. Stakeholders as essential idea in comprehending business and society have claims, privileges, prospects that could be respected, and thus the stakeholder approach encourages that search.

With this perspective in mind, the JIMAB has to answer the important question relating to pertinent stakeholders. Moreover, one can see the possible interests, concerns, perceptions of rights, and expectations of some of these strategically important stakeholders from the perspectives and opinions of the interviewee respondents while interviews conducted in connection with the JIM Projects and corroborated with other sources.

For the company, the primary motive is profitability and financial gain as opposed to the natural environment, community and the local people. From the speeches made by Clive Sinclair-Poulton- Executive Chairman in the Youtube clip one can see and imagine about how financial profits and sales returns are of primary objectives for the company as opposed to the interests, concerns, perceptions of rights, and expectations of stakeholders regarding the future of Jokkmokk Municipality. And hence, it could be difficult for the Beowulf Mining to wait for consent from the Swedish authority in order to commence extraction of iron without resolving the ultimate answerable questions of the stakeholder groups. According to the Iron Ore Market Report for Beowulf Mining Plc., the first 15 years of mineral working only considered in their calculations. They also put it clearly that additional investments will be undertaken to sustain capacity of mines to the project life time of about 60 years. Notwithstanding the initial investments in the first 15 years will be much higher than the investments to be undertaken in the coming 45 years followed by the first 15 years. The financial profit, therefore, will be significantly lower for the first 15 years than for the next 45
years. The report projects that the company’s primary focus is profit and financial return as opposed to the responsibility and responsiveness towards the society and environment.

And hence, as the concept relating to the legitimate need and expectations of stakeholders Carroll & Buchholtz (2003) cited above, it is highly relevant for the company to identify and examine what context is required to look in depth the performance of the company. This has to be done prior to and during project implementations and about how can environmentally-friendly and socio-economically viable development could be possibly integrated. It also deals about what measures need to be incorporated in order to solve the issues of stakeholders and the problems with the local communities and Saami prior to the project operation through communicating and dialoguing with the pertinent stakeholders.

For the public authorities like for example in the Jokkmokk municipality and Norrbotten County, the main interest and areas of focus may be supposed to be solely on the job opportunity. Other areas of interest are stimulation of development programmes for local youth, and economic growth, though the problem of communication with environmental politics remained unsolved as the cause of the conflict among stakeholders directly linked to the question of power. Such challenges escalate as environmental politics is increasingly concerned with the power relations amongst groups of people, and between people and the environment. As, more generally, environmental politics inquires deeply into the nature of power in society, including the ways in which corporate interest strive to influence public opinion and behavior.

Notwithstanding, the local people, particularly Saami’s specific interest is to preserve their cultural and historical heritages, and hence, bother much about nature values and unique heritages. They also want to continue with reindeer husbandry created for them as the only job opportunity and means of earnings in addition to the income they earn from tourists. Based on their perceptions of rights, the Saami people have been carrying out anti-mining movement. They have been protesting against the mining company and mineral exploration in the areas where they claimed to be indigenous land used for reindeer herding. As the JIM project site is situated about 30 kilometers southeast of the boundary of the World Heritage property it seems that the Kallak mining project have no direct impact on the property itself. Nevertheless, the question has been raised by Swedish National Heritage Board and the Environmental Protection Agency about how the potential threat is more directed towards its effect on reindeer herding and the Outstanding Universal Value of Criterion (iii) and (v)

Universal Value of Criterion of Class 3 and Class 5 have definitions as to “bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared” and “be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change respectively”. In this regard, the two institutions seem unsatisfied with the EIA statement submitted by the JIMAB as it lacked the required information regarding the

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proposed mining activity’s impact on reindeer herding, the World Heritage property, as well as nature conservation and how the “Laponian Area’s” values may be maintained and managed\textsuperscript{60}.

The Swedish Environmental Code defines the activities of extractive industries like mining and mineral working as “environmentally hazardous activities” and will therefore have to have permission from the Environmental Court\textsuperscript{61}. In this sense, as major concern for the pressure groups like environmental groups and activists who have been opposing mineral working plan, and the point of departure is only one that mining is the most damaging and/or polluting agent of environment. And hence, mining operation should not be conducted in those areas where nature values are high like in the case of the Kallak Iron Mining Projects to be carried out in the vicinity of the World Heritage Property, “Laponian Area” in Sweden. Unless and otherwise due consideration is taken towards making the best and most efficient use of mineral resources, so that the mineral extraction and processing should take the needs of the present and future generations into account with a view to satisfying their aspired requirements. They also require that the environment to be affected due to mineral extraction that should be rehabilitated and conserved in the sense that the future generation will never be compromised by the activities of the present generations. They also argue that the mining project can cause damage directly by demolishing environmentally sensitive mountainous areas of magnificent beauty of northern Sweden. Or indirectly by pollution, fragmentation or reduced care of the reindeer herding and the livelihood of Saami and their cultural heritages as these activities are environmentally hazardous.

When considering social impact and human health, Therese Jacobson from Greenpeace Sweden, who is working as ecotoxicology expert for the Arctic region, said that heavy metals like iron ore and others are characterized by their adverse effects on human health and may cause problems with reproduction, immune systems, neurology. One other opponent of the mining plan Erik Blomqvist who is the co-chair of Friends of the Earth Sweden, also said that it seems at the moment that Kallak may be emblematic for the successful mining in Sweden. Nevertheless, he suggested that if the ratification of Kallak realized it will transmit a message to the global mining community that Sweden is easily accessible. With this perspective in mind, environmentalists and activists from across Sweden including members of Blomqvist’s group and Saami herders firmly protested for nearly two months camping out facing the Kallak mining site. All these people are requiring that their voices to be heard and considered by the government because they are worried in view of the future dilemmas will possibly escalate due to the risks attached to insensitive corporate practices\textsuperscript{62}.

Saami may have some universal rights, democratic rights and other rights which they have got by certain international, regional and nationwide laws. Notwithstanding, these rights did not empower them to influence and argue in such a way as to enable them regain the greater control over their fate and lives in the context of the land and natural resources where they are living. The conditions of the indigenous people worldwide are regulated in accordance with (Appendix 1:5: the Indigenous and Tribal Peoples Convention 1989/ILO-Convention 169). The convention is endorsed to recognize the people who have lived over time, on the lands which were occupied by their great ancestors before any state came and claim it, and which they have used and managed according to their traditional practices, and which proclaimed to

\textsuperscript{61}Swedish Environmental Code, Chapter 9, section8(see Appendix III)
give the right to profit from mines in Saami areas whenever possible. Nevertheless, there is no such provisions in Sweden and is not recognized as part of the public law as it is not ratified and signed by Sweden.

When it comes to stakeholder engagement and management, the JIMAB on its webpages, under the topic ‘responsibility’ it has indicated that “the company will openly and correctly inform employees, the general public and public authorities of its activities. While prospecting, the company has a particular responsibility to communicate actively with landowners, public authorities and other concerned parties.” Nevertheless, the communication and disclosure of information should include all of the pertinent stakeholder groups in addition to those stakeholders cited by the company. If the prospecting company does not include those stakeholders which are considered to be strategically important it could be difficult to believe that the environmental planning and decision-making could be managed sustainably. The issue of stakeholder further could be handled in the way that biophysical, especially nonrenewable resources in an equitable and sustainable manner when considering the interests, concerns, perceptions of rights, and expectations of stakeholders groups in the context of the JIM Projects.

As the intrusion of mining industry like the JIMAB increases the depletion of nonrenewable resources is also growing in the Arctic regions of northern Sweden including those areas where the local people, Saami are dwelling today, for example, Jokkmokk areas. Furthermore, the excessive exploitation of the non-renewable resources will limit the freedom of choice of the future generation of these areas. As a result the biodiversity and ecosystem including reindeer herding may be destroyed and probably tourism as well. Most of the decision-makers of today will be dead prior to the future generations encountered the severe effects of mining in these areas. However, prior to that strong actions need to be taken by extractive industries, especially mineral mining through sharing the responsibilities with other stakeholders to solve those problems through making significant managerial commitments to CSR practices and sustainability performance. Particularly, the destiny of the local communities and local people, especially Saami and its future socio-economic and environmental issues also need to be closely examined in this regard.

6.4.4 The Risks of Change and the Future Perspectives of the Jokkmokk Municipality

Transnational extractive industries, especially mining companies have had poor environmental records, and have been targeted by environmental groups seeking to raise public awareness of the problem as well as to raise the environmental and social standards in the industry. This is due to the fact that most of the easily accessible minerals have already mined, and mining companies are compelled to search for minerals in the controversial areas like the Arctic. With this perspective in mind, it has been argued by pressure groups like NGOs/civil societies and/or community activists, as well as the local people in the sense that any mining project which are supposed to be carried out in Arctic region. This includes the Jokkmokk (Kallak) Iron Mines projects’ operations are “environmentally hazardous activities” which requires environmental permit from the Environmental Court because they have potential risks or may cause all kinds of environmental degradation, as well as pollutions and other nuisances.

Furthermore, such projects may result in environmental decline like for example impacts on the natural environment as these sites are located in environmentally sensitive mountainous region of Arctic of northern Sweden. These are considered to be areas of “national interest”

and ecologically vulnerable land and the distinct habitat of reindeer herding of the Saami people for the last thousands years. This place has for this and some other reasons been safeguarded and preserved as a UNESCO World Cultural and Natural Heritage Site known under the name Laponian Area. Furthermore, the region is designated as an outstanding universal value because of various reasons. One good reason that makes it special is that the ongoing geological, biological and ecological processes involved. One other reason that distinguish it is that a wide diversity of nature with extraordinary magnificence and important biodiversity. This includes a significant number of populations of brown bear and alpine flora apart from its historical and cultural heritages attached to it also makes it more valuable nature of national interest.

Different scientific studies reveal that the development activities and the ensuing risks and opportunities have been increasingly growing due to the associated impacts (both negative and positive) of TNCs and their effects of changes on the biosphere. One other good reason also can be derived from the Arctic Climate Impact Assessment (ACIA, 2004) and other scientific findings that it has been demonstrated that change will be comparatively rapid in the North. As ecosystems functions shift, one may not tell with certainty about what will happen to freshwater systems, forest, marine ecosystems, and other key aspects of the natural world. For example, when considering the Jokkmokk Iron Mines Projects, it is of short-term duration (say 15 years), and probably one might tell what will happen regarding the environmental liability with a touch of uncertainty. However, as it is mentioned in the Iron Ore Market Report for Beowulf the Kallak deposits, the project could endure a mine to the extent of 60 years. And hence, one may not tell about what will happen when it comes to the long-term, say 60 years or beyond that.

Marshall (1982), with regards to Arctic region’s natural recovery, particularly by considering the case of Canada, describes that the potential environmental impacts attributable to the mining industry are many and varied, ranging from minor changes in vegetation cover, to severe and permanent land degradation. Furthermore, he explains that the land and ecological disturbance by exploitation in the mountains areas in the north is so severe. During his studies, he observed that in permafrost zones the natural recovery process is very slow to erase any damage and often there is no recovery when erosion is severe. And hence, most provinces facing these conditions have imposed reclamation requirements for a condition of exploration permit approval. Simple treatment may not result in a swift natural re-vegetation and rehabilitation. He, therefore, concludes that the case is not as simple as it is expected to be in the Arctic region as this region has a wide variety of similar conditions in terms of weather and climate system and is highly sensitive in terms of environmental characteristics as opposed to the lower altitude regions.

If the change is surely affecting the Arctic as predicted, the negative effects of such projects may outweigh its positive effect and aggravate the risks of change on biodiversity and ecosystems. This leads to long-term environmental pollution, landscape degradation and social disruption, which in turn push the burden and pass onto the generations to come. In this regard, Selman (2000) suggests that “many environmental strategies now insist that development should not be permitted unless its long-term and indirect consequences can be predicated with reasonable accuracy and are known to be acceptable within a given location (where this cannot be estimated, the precautionary principle applies).” The Environmental Code also establishes a certain substantial requirements in relation to the precautionary principle “Persons who pursue an activity or take a measure, or intend to do so, shall

64 Laponian Area (UNESCO: World Heritage Centre): http://whc.unesco.org/pg.cfm?cid=31&id_site=774
implement protective measures, comply with restrictions and take any other precautions that are necessary in order to prevent, hinder or combat damage or detriment to human health or the environment as a result of the activity or measure. For the same reason, the best possible technology shall be used in connection with professional activities. Such precautions shall be taken as soon as there is cause to assume that an activity or measure may cause damage or detriment to human health or the environment.”

According to (WCED 1987), it has been stated that “the environmental costs of economic activity are not encountered until the assimilative capacity of the environment has been exceeded. Beyond that point, they cannot be avoided. They will be paid. The policy question is how and by whom they will be paid, not whether.” So in connection with the responsibility it is important to raise questions like for example who is going to assume the environmental costs of the economic activities beyond the sixty years period for the case of JIMAB. Or is the environmental liability need to be handed over to the Swedish government or pass it over to the Swedish tax payers. Or is this weakness of environmental burdens, as well as potential impacts which are caused by human-induced effects of the present generation need to be transferred to the next generations as if these are good deeds?

In this respect, for example, Granqvist (2014) argues that the 0.2 percent tax on mineral that the mining companies pay to the government of Sweden is still controversial as the legacy cost is insufficient in comparison with the impacts and the damage inflicted as in the cases of Blaiken and Svärtträsk that were leaking heavy metal. When considering mine ownership and the cost of remediation of abandoned mines no one is liable for resulting pollution and damage except the Swedish government itself as the bankrupt mine is incapable of paying money for the remediation whether the company is foreign or Swedish based. Beck (1992) also puts the problem of modernization founded on economic competition of this globalized world in this manner that “In systematic terms, sooner or later in the continuity of modernization the social positions and conflicts of a ‘wealth-distributing’ society begin to be joined by those of a ‘risk-distributing’ society”.

According to Beck’s analysis, therefore, corporate society digs its own grave, since its organizations increasingly show their inability to handle the dangers it has created.

When considering the future perspective the Jokkmokk municipality and its natural environment, the surrounding communities and the local people, Saami in the context of JIM projects as fundamental issues of development. The environmental costs and liabilities beyond 60 years period of sustainability of the mine resources should be taken into consideration. Moreover, the company is required to integrate this dimension into its initiatives and obligations. The Swedish government at the county and local level should also consider the potential liabilities for environment, and go after in pursuit of the project until its operation is completed. And hence, one can say that there should be adopted precautionary principle/approach in case of serious threat or damage during and after mining project implementation. This approach is required in absence of the mine closure and rehabilitation measure as it ensures the public wellbeing and environmental sustainability of the Jokkmokk municipality and the county; as well as the socially and environmentally sensitive mountainous areas of the Swedish portion of Arctic region.

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65 Swedish Environmental Code, Chapter 2, section 2 (Appendix III)
7. Conclusion and Recommendations

As CSR is oriented towards resolving the dilemmas in relation to the triple bottom line, the extractive industry which have already started their operation or which are going to start new mining operation in the area including the JIMAB ought to be aware of that the impacts of their operations that may cause harm to the human society and environment. They also need to take measures in minimizing their associated impacts and maximizing their business benefits through substantiating the stakeholders’ need and protecting the environment. Otherwise this may have a detrimental effect on their image, reputations and financial performances. Furthermore, it could be important for the mining industry like the JIMAB to be effortful towards improving their practices and performances on project planning and design phase prior to the commencement of project operations. As well as commit themselves for the future and work towards achieving sustainable development to mining operations through maintaining stakeholders’ perspective and taking actions to solve the associated environmental and social impacts. Thus, they have to be socially accountable through communicating information and reporting their CSR and sustainability performances during the life-time of their projects.

Ultimately, in order to ensure long-term benefits for a company, stakeholders and the society at large, sustainable development through approach of CSR entailing of economically viable, socially responsible and environmentally sound plan of actions are of supreme importance. Thus, the main conclusions are summarized and recommendations entailing of some clear expectations to be fulfilled are suggested for how CSR and sustainable development issues may be handled by all extractive industry in Northern Sweden. In this sense, the mining industry like JIMAB has to work towards achieving sustainable development based on the international, regional and national social and environmental priorities, policies and legal frameworks. As well as capturing the globally developed voluntary and mandatory principles and standards to influence these company-society relations centered on CSR affiliated to pervasive ethical business perspectives of the globalized world.

In the context of the Jokkmokk (Kallak) Iron Mines, therefore, it is imperative for the JIMAB to anticipate impacts due to mining operations and proactively manage pertinent issues consistently whenever they arise. All the crucial issues that make up the company’s agenda relating to the development of CSR could be tackled if it is linked to corporate vision and vision for society and formal policy document, a set of ethical practices, staff training, and sound governance practices. As a basic business requirement for company’s internal and external social and environmental accountability reporting, environmental reviewing and auditing, risk analysis, stakeholder dialogue processes are also essential. With these perspectives in mind, this study seeks to recommend the following as it is vital for JIMAB to:

- Realize that social and environmental responsibility is a road map for Beowulf plc., to properly run its business and to show a growing concern for investment in social and environmental funds through sharing the benefits of company’s activities with strategically important stakeholders. This can be ensured through recognizing that in principle managers need to have developed a more positive view towards CSR practices as the approaches are valuable and amenable, or at least have no detrimental effect on company’s performances. As well as make managers effortful towards achieving sustainable economic development as CSR contributes towards a more beneficial corporate image and reputation concerning environmental and social responsibility.
- Refrain from causing permanent environmental damage while implementing the mining projects on communities in Jokkmokk, the local people now and in the future;
and work towards achieving sustainable development as it explores the interrelationship between economic development and environmental quality. This has to be done through integrating a proactive environmental management which incorporates the full economic, social and environmental costs and benefits of mining ventures into planning and decision-making. As well as develop and implement the project plan based on the concept of Design for Sustainability (DfS) which incorporates social, economic and environmental impacts.

- Adopt a more or less generic management approaches to managing CSR issues. Manage its operations safely, efficiently, legally and ethically and cost-effectively in a way as to reveal its obligation to important values in society and to consistently handle the three pillars of sustainability in a well-balanced fashion. Impart an effect in positive direction on the pertinent stakeholders in order to make economic development consistent with environmental protection through integrating operational and achievable sustainable strategies and by not limiting the freedom of choice of the future generation of the mining areas. As well as introduce innovative and advanced technologies for environmental and economic motives and public policies and tighter regulations that enable them manage the effects on the environment and communities in Jokkmokk where the business operates.

- Monitor and follow-up on the impacts inflicted by the company in which anticipation of the impacts and suggestion of feedbacks on the mitigations and project operations; as well as proactively manage the impacts on communities in Jokkmokk, the local people and the environment, as well as the reindeer herding during every phase of project life as a prerequisite domestic EIA practices. This has to be based on the adopting precautionary approach in case of serious threat or damage to the overall social wellbeing and environmental sustainability. As well as integrate the high costs to address the environmental and human harm in the area and liabilities into its initiatives and obligations in the coming 60 years or beyond that.

- Work with strategically important stakeholders such as the Swedish government both at county and local level, and local communities and the local people, Saami; as well as pressure groups, especially with NGOs for sustainability and civic organizations as they are considered to be the wellspring of social trust. Consult with them in order to manage conflicts, improve decision-making, build consensus across groups with diverse views, and enhance corporate reputation and legitimacy as it is essential to solve the problem of misunderstanding and miscommunication among them. As well as issue CSR reports and communicate information through integrating social and environmental concerns in all parts of the mining industry.

- Work towards achieving sustainable development in which the economic, social, and environmental issues are harmonized through building a well-developed business model for assessing the impacts and consequences of their actions and including the social and environmental aspects in its financial outlook; as well as integrating a proactive environmental management in planning and decision-making that assumes the social values and economic profitability for the company in the long-run and also attain legitimacy.
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105


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List of Appendices

Appendix 1: Tables

http://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/index.html

Appendix 1.2: Ten principles for sustainable development. Source: ICMM (2014)


Appendix 1.5: Indigenous and Tribal Peoples Convention, 1989 (ILO Convention 169).


Appendix 2: Interview Sources & Questions

Appendix 2.1: Interview Sources: Interviewee Respondents

1. Björn Öhlander, Professor, Holder of a Chair, at the Department of Civil, Environmental and Natural Resources Engineering, Luleå University of Technology, mining expert.
2. Wolfgang Mehl, Project Manager at EU Project (Ninets) and part time worker as Environmental Strategist at Jokkmokk municipality, environmental strategist and sustainable development expert.
3. An anonymous respondent (man) who is a resident of Luleå, Norrbotten.


Appendix 2.2: Interview Questions:

1. Sustainable mining is assumed to be paradoxical as mining by its very nature involves the removal of a non-renewable resource. How do you see mining in the context of corporate social responsibility (CSR) and/or sustainable development?
2. What are the major environmental impacts associated with major mining operations at Arctic/Sub-Arctic region in general and Jokkmokk Iron Mines sites in particular?
3. What possible social impacts may be associated with mining operations at high latitude regions and the Jokkmokk Iron Mines (JIM) case?
4. Do you think that all the environmental and social issues are well addressed by the company through integrating the issues into planning and decision-making? How well impacts especially impact on the reindeer herding is identified in a way as to anticipate and mitigate damages based on comprehensive EIA study report by the JIMAB?

5. What are the positive legacies that the mining leaves for environment? How does the JIM project contribute sustainably to the development of local communities and indigenous people by outweighing the social and environmental impacts and long-term potential threats or risks that might be associated with it?

6. What is your proposition regarding the intergenerational equity and the precautionary approach to be adopted in case of potential threat or damage to the environment and society due to the implementation or absence of mine closure and conservation of biodiversity and ecological integrity measures?

7. How do you see the practice of JIMAB since the initiation of the project work in 2006? How do you perceive and evaluate CSR frameworks for the company whether it will undertake sustainable approach to mining through maintaining stakeholders’ perspective and continue ethically and legally practice CSR and communicate information; as well as report its CSR and/or sustainability performance during lifetime of the project or not?

Appendix 3: The Most Important Laws and the Relevant Chapters and Sections for Mining Operations in Sweden


Chapter 1: 1§, 2§, 4§, 5§, and 7§; Chapter 2: 1§, 5§, 6§, and 7§; Chapter 3: 1§, 3§, 4§, and 5§;
Chapter 4: 1§, 2§, 7§, and 8§; Chapter 7: 1§, 5§, and 7§; Chapter 9: 1§; and Chapter 10: 1§


Chapter 1: 1§; Chapter 2: 2§, 3§, 7§, and 10§; Chapter 3: 5§, 6§, and 7§; Chapter 4: 1§, and 5§;
Chapter 6: 1§, 3§, 6§, and 7§; Chapter 9: 1§, 2§, 3§, 4§, 5§, 6§, and 8 §.


Chapter 1: 1§; Chapter 2: 1§, 2§, 3§; Chapter 5: 18§.