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Mining Under the Sustainable Development Framework

A case study of Gold Fields impact on Local Economic Development

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Abstract

Up until the late 1990s, the mining industry as a whole has been scrutinised for being unsuitable. In response to heavy criticism, nowadays several mining companies has adopted sustainable development principles, namely the ICMM sustainable development Framework. The adoption of this framework led to mining companies adapting their sustainability strategies and initiatives to best fit the framework. This also suggest that mining companies can help trigger local economic development. This thesis examines how a mining company has used the principles under the framework in their initiatives to contribute to sustainable economic development. The research undergoes a single case study analysis focusing on Gold Fields. This work, by using the local economic development theory confirms that mining plays and contributes in an important way to local economies. The main argument this thesis bring is that mining companies can indeed help to contribute to local economic growth, however their potential to do so has been underestimated. This study reaches three conclusions that Gold Fields has done to contribute to sustainable economic development. First, the company has localised their initiates by creating programs that directly address social needs. Second, the company have focused on both indirect and direct forms of employment, and their more important, GF has increased knowledge and skills in society. Moreover, they have used local capital to create competitive advantage. Lastly, the local conditions where mines are located impacted the outcome of Gold Fields programs, and moreover highlighted that the responsibility to contribute to local economic development, is a shared responsibility between multi-level actors. Meaning that forming collaborations with local government actors to increase the human capital. The thesis concludes that Gold Fields is a catalyser of sustainable economic development in the region and the company has adapted the framework to best suit the local context.

Key Words: local economic development, sustainable development, human capital, community development, mining companies, diversification, employment

Words: 9,994

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Abbreviations

ICMM	International Council on Mining and Metals
GF	Gold Fields
SD	Sustainable Development
NGO	Non-Governmental Organization
CVC	Creating Shared Value
OXI	Work for Taxes
LED	Local Economic Development
RCT	Resource Curse Theory

1 Introduction

1.1 Aim and purpose

The aim of this paper is to describe the impact mining companies, operating under the International Council on Mining and Metals (ICMM) Sustainable Development Framework, have on local communities and regions. This is done by using a case study of the Gold Fields' (GF) mining operations in Hualgayoc. This framework will be clarified in the following section of this thesis. This paper defines the term economic development using a broad and narrow concept of development. The narrow concept of economic development is viewed as the increase in GDP (Harvey and Jim, 2000, p.66). However, development also encompasses social and political dimensions (MoulaertandSekia, 1999, p.10).

For nearly half a century, scholars (i.e., Auty, 1997; Rodrïguez and Sachs, 1999; Ross, 2001; Sachs and Warner, 1999) have argued that mining has been detrimental for economic development. Such studies, taking a macroeconomic perspective, look into the effect of mineral explorations on trade, government revenues, and ultimately support the Resource Curse Theory (RCT). Recently scholars have begun to acknowledge how, in some cases, mining has actually generated a positive economic contribution, and therefore begun to investigate the prerequisites needed to generate such positive impact (Eggert, 2001). This shift in academic thinking has begun to highlight the significance of human capital for long term sustainable economic growth; investigating the role of multi-level actor participation along with the Local Economic Development (LED) theory[1];and essentially highlighting a firm's ability to adapt to local conditions as key for realising regional economic growth (Lambooy and Oedzge, 1997, p.73). Here it is being stated that mining operations need to be adapted to local conditions and that competitiveness is, to a certain extent, also needed to spark sustainable economic development.

This is not to say that previous studies have not highlighted the positive consequence of mining, however, in my humble opinion, after reading several academic papers, they have done so in a way that still portrays mining companies in a pessimistic manner. Mining has, for a while, been viewed as a social conflict creator as argued by most scholars pertaining to the resource curse theory. However, this thesis building on the LED theory, will argue differently. Therefore, the focus of this thesis has been on a single mining company, namely GF operation in Peru.

GF operation in Peru is called Cerro Corona. It is located in the District of Hualgayoc in the Department of Cajamarca in northern Peru. The mine is a medium sized open pit mine found on the western mountain range of the Andes, with an altitude between 3,600 and 4,000 meters. The mine employs around 1000 people and currently produces around 170,000 ounces of gold and 180,000 tons of copper annually. The construction of Cerro Corona began in 2006 and production started in September 2008 (Gold Fields, 2018c). The estimated mine life was initially 16 years, and last year, the life of mine has expanded, until 2030 (Gold Fields, 2018a).

[1]LED is defined by The World Bank as "a process by which public, business and non- governmental sector partners work collectively to create better conditions for economic growth and employment generation. The aim is to improve the quality of life for all"(World Bank, 2003).

Contrasting to the recent experience of other mining projects in the Cajamarca region and elsewhere in Peru, Cerro Corona was constructed without significant community opposition and conflict. It has also received much recognition in Peru for its social programs and practices, specifically the ones that will be addressed in this thesis. Relative to the scandals that happened elsewhere in the region – and in Peru more broadly – GF has been a good outcome (Instituto de Ingenieros de Minas del Perú, 2018).

1.2 Research Question

The main question addressed in this case study is: *How has Gold Fields, operating under the ICMM SD Framework, with the help of NGOs and local government collaborations, tried to foster sustainable economic development through a number of programs?*

Please note, this thesis will not critique the ICMM SD Framework, but rather analyse the programs that GF has adapted, created and implemented since their adoption of the ICMM SD Framework in 2007 (ICMM, 2019). This is because it is assumed that the program adopted are aligned with the framework. To analyse these programs the LED theory is going to be used. The LED theory has many similarities to the ICMM SD Framework however, they are not the same, as later shown through in the analytical framework.

1.3 Delimitations

The first delimitation this thesis has is that it does not consider the environmental aspect of mining. Before moving any further, it is important to clarify that this thesis will use the concept of weak sustainability. Weak sustainability presumes the exchangeability of human capital for natural capital, and thus following the same logic, acknowledges that mining can be sustainable if benefits are adequately invested in other forms of wealth (Costanza, 1991). Here it is being assumed that the mining company can still contribute to economic development in a. sustainable fashion, even though the act of mining is in itself finite and unsustainable. If this definition of sustainability is not given, then analysing the extent that a mining company can trigger sustainable economic development becomes redundant, as the activity in itself is unsustainable. Moreover, the mining industry has embraced the concept of weak sustainability and thus, so has this thesis (Humphreys, 2001; Otto and Cordes, 2000). Therefore, environmental issues will be excluded from this thesis.

The second delimitation is that the study assumes that mining companies operating under the ICMM Framework have a greater impact on the local community, and thus a mining company not operating under this framework, but perhaps with better community development initiatives, was not considered. Moreover, the theoretical lens chosen to investigate the company was the LED theory, which emphasises very similar issues as important when a mining company should enhance economic development at the community level. Therefore, the use of LED to evaluate ICMM SD Framework risks to only confirm the explicit purposes of the framework itself. The third delimitation, and possibly the greatest one this thesis encompasses is that the main source of data, hence mainly material from GF was used as a means to analyse GF programs. Even the material obtained from the NGO reports was later found to be funded and connected to GF. Despite all data being audited, this made it

extremely difficult to critically scrutinise their actions when accessing their programs. Fourth, companies that do not use the ICMM SD Framework were excluded when selecting a mining company to evaluate. Finally, interviews with the local population were not carried out given time constraints, and this excludes a vital perspective when analysing mining impacts on local communities. Despite these delimitations, it is still believed that the research is still valid and worth pursuing.

1.4 Structure

The thesis is structured the following way: Chapter two described the analytical framework used in this thesis. Chapter three outlines the methods and materials. Here the material used for contextual background and analysis is presented, and the steps for obtaining the data and research design are described. Chapter four presents the context of GF in Peru. The purpose of this section is to better understand the socioeconomic and historical context of GF operation and problems that they have been facing. The programs selected will be described here. Chapter five presents more findings, the analysis of the programs, and answers the research question. Chapter six concludes by highlighting the main findings and answering the research question. Finally, the bibliography and the appendices are presented.

2 Analytical Framework

2.1 Reframing the Resource Curse Theory

It is assumed that nations with giant deposits of mineral ought to see themselves as lucky. Minerals offer a potential contribution to national GDP and hence can contribute towards wealthier economies. In that view, mining companies extract minerals carrying economic value from underground, which then, in a perfect world has the potential to be transformed into better education, infrastructure, and overall economic development (Eggert, 2001). However, through the 21st century, new evidence has surfaced and simultaneously scrutinised the positive connection between economic development and natural resource extraction. Scholars have argued that the extraction of natural resources actually delays, as opposed to speeds-up development, and thus increases the social problems within the region. Moreover, an increasing number of scholars have announced a negative relationship between economic growth from the exploitation of minerals resource (Auty, 1997; Rodrïguezand Sachs, 1999; Ross, 2001; Sachs and Warner, 1999). This notion has been associated with the "Resource Curse Theory" (RCT).

The arguments put forth by RCT scholars are alarming. Simultaneously, with the start of a new century, it also appears that the Resource Curse Theory arguments surrounding the discourse over mining's contribution to sustainable economic developed have shifted, from macroeconomic discussions favouring mining developments to microeconomic ones (Humphreys, 2001). Discussions have shifted to debates around the long-term impacts of individual mining companies on local and regional economies. The question of whether mining is detrimental for development remains debatable, however there is greater recognition that mining industries create opportunities, which in some cases has promoted development (Acemoglu, Johnson,and Robinson, 2001; Aroca, 2001; Davis and Tilton, 2005; Humphreys, 2001; Overseas Development Institute, 2006; Rodrïguezand Sachs, 1999; Wright andCzelusta, 2004).

2.2 Reconceptualising Growth Theories

Neoclassical and mainstream modernisation theories have focused mainly on increased labour productivity and technological advancements as main drivers of national economic growth. Hence, such theories are critiqued as insufficient for understanding the impact of mining companies on local communities. In fact, Easterly (2001) argues that despite capital (in the form of aid or investments) being important for economic growth, it alone cannot guarantee long-term development. Moreover, Pack (1994) highlighted the importance of moving beyond productivity and technological innovations and focusing more on aspects like investing in human capital.

In addition to this, growth poles theories found to be represented in Terluin (2003) as agglomeration models, are far too simplistic for understanding economic growth. This is because agglomeration models (see figure 1 in appendix B) depend on the already existing concentration of labour and capital in the region, as this in effect can increase a region's economies of scale and allows for a more diversified labour market. The concentration and expansion of economic activities can trickle down to other areas of the market creating more

consumption, production, and increased labour (Terluin, 2003, p. 331). However, there are several harmful implications in this model that needs to be considered. For instance, some regions "are deprived from labour and capital" (Terluin, 2003, p. 331). In addition to this, such places can "face increasing disadvantages since these regions cannot maintain a good infrastructure, a good school system, and other public utilities" (Terluin, 2003, p. 331). If this is the case, following the same logic, economies cannot agglomerate and thus grow.

2.3 Local Economic Development Theory

The dissatisfaction in neoclassical theories for explaining growth led me to adopt the Local Economic Development (LED) Theory as the theoretical framework for this thesis. Inside the LED theory are numerous other theories and concepts that this thesis will refer back to in the analysis. One of these is the Endogenous Growth Theory, which can be represented through the Local Milieu (LM) model expressed as: Y = f (LM, L, K), found in Terluin (2003, p. 331).Different to Neoclassical Growth Theories which highlight primary labour (L), capital (K), and agglomeration effects (AE). This model emphasises through the variable LM which emphasises that "skills of the labour force, technical and organisational know-how, and social and institutional structures, affect the revenues from the input of capital and labour, all play a role in development" (Terluin, 2003, p. 331).

In this model, relationships building strong resilient economies entails collaboration with different local level actors, can trigger economic development. Innovative institutional arrangements have the potential to create new spaces for economic interactions, if and when public and private sectors and the community engage and interact with each other. Perhaps this can be viewed as the key ingredient in the recipe for growth. Moreover, the LED theory and the endogenous growth theory expand on the idea of increasing local responsibility (Eggert, 2001; Remy and McMahon, 2001; Strongman, 1998) and thus, proposes the notion of government decentralisation. Lastly, that private sector activities can be the stepping stone for successful government structures, which can ultimately increase the private sector coordination whilst simultaneously generating long-term economic development(Vazquez-Barquero, 2002).

Contrastingly to the exogenous model, the benefits of development through this model are kept at the local level and retained by the local economy (Slee, 1994, p.184). This model is linked to the endogenous growth theory since there lies strong importance on "rural diversification, bottom-up approach, support for local business, encouragement of local initiatives and local enterprises, and provision of suitable training" (Lowe, Murdoch and Ward, 1995, p.91). For the upcoming analysis, links to the following two theories within this endogenous growth theory will be based. The theories are the community development theory and (Bryden, 1998) theory on the opportunities in immobile resources as a way to develop competitive advantages in rural regions.

The community development theory is about strengthening the capacity of local level actors, which is seen to be a "precondition for establishing and sustaining local economic development"(Murray and Dunn, 1995). Strengthening capacity means for instance including rural communities in the process, working with "conflict resolution, mediation, leadership, understanding the business of government, and achievement of a shared vision" (Terluin,

2003). Government partnerships and institutional arrangements, as previously mentioned, are seen as the main tool for capacity building. These are especially needed in regard to building linkages between the local, regional and national government since for community development theory institutional arrangements are needed to incentivise bottom-up initiatives. Note that the term community development and local economic development will be used interchangeably.

Bryden (1998) has made an important contribution to the LED theory and endogenous growth approach. Bryden argues that given the increases in capital, goods and services, and skilled labour, "these resources are an unstable basis upon which to build a development strategy for rural areas" (Terluin, 2003). Therefore, the scholar proposes that the competitive advantages in the region should be established on the basis of what immobile resources, those being: cultural, social, local knowledge, and environmental capital. In his view, rural economic development depends on the combination of these types of capital. Through the use of the endogenous growth framework, and the content of the theories, it is being argued that business strategies generated through the endogenous growth theory have the potential to generate economic growth in a sustainable fashion.

At first, it was observed that the Resource Curse Theory has focused mainly on macroeconomic aspects of the development debate, when explaining the assumed negative relationship between resources rich economies and growth. A number of studies have argued that the claims brought forward by the Resource Curse Theory are to be questioned. However, more recently, the benefits that such activities can bring long term economic growth and development have made it opportunistic for countries to favour mining economics (Davis, 1998; Davis and Tilton, 2002; Eggert, 2001; Mitra and Easterly, 2002). Moreover, it has been acknowledged that an endogenous growth theory is key for the prosperous development of a nation through mining activities. The neoclassical theories have triggered the emergence of a new approach which has begun to show how the mining sector can foster local development, where large mining corporations are actors pushing for such changes and economic development (Humphreys, 2001; ICMM, 2018).

2.4 ICMM Sustainable Development Framework

The role that mining has played in a local economy has changed significantly, and it is important that the reader is informed of such changes since mining no longer is a resource *curse*. Eggert (2001) identifies three paradigms in mining development, each paradigm comprised of a mining model. The first two models are; the strong-local linkage and the weak-local linkage models of mineral development. The third model was developed from the critiques in the former two models, responding to the poor and unacceptable performances of the industry in terms of development (Auty, 1997; Eggert, 2001; Humphreys, 2001). Eggert (2001) refers to this model as the Sustainable Development (SD) model of mineral development. This section will mainly focus on the SD model as it is a crucial part of the analysis of this paper however, a short description of the other two models will be provided.

The strong local linkage model, used in the 1970s, was essentially when mining companies had strong regional economic linkages. Thus, coupled with the fact that transportation costs were so high at the time, "mines purchased most of their inputs locally or

regionally" (Eggert, 2001). This however created mining dependent towns (Eggert, 2001). This critique then sparked the emergence of the weak linkage model. When transportation costs dropped, as evidenced by several studies in the 1960s, (Manners, 1971), the distribution of the locations of mineral processing away from the consumers, machinery and building materials have also become sophisticated and thus imported from abroad. As imports for capital-intensive technologies increased, mining companies located in rural areas supply the global market. One also noticed how even skilled labour was "imported" (e.g., management positions and experts) to the rural area, given the scarcity of skilled local labour. Whilst the dependency on the local area was reduced, it was around this time when many mining scandals appeared, showing how mining had a negative impact on communities, and only engaged with them through a philanthropic approach. The method in which mining companies attempted to address communities threatened the firm's reputation, and essentially pushed management to shift their ways.

The evident negative consequences mining companies have generated, along with their failure to improve the conditions of the local communities has prompted international actors to suggest that mining activities should be stopped in its totality (Ross, 2001). Nevertheless, this is not believed to be the solution because a) given the literature reviews, massive mining operation have the potential to bring sustainable socioeconomic development and b) mining companies have shown numerous attempts to improve this scenario by increasing contributions to local communities, these efforts are known as the ICMM SD framework or model in mining (Eggert, 2001).This thesis has chosen a mining company operating under the ICMM SD Framework since it aligns with (Eggert, 2001) description of a sustainable model for mining. The ICMM is an industry association body that has launched objectives that incorporate principles of the new approach, carrying the sole purpose of promoting the sustainable development framework in the mining sector. Currently, most large mining firms have adopted the principles in the framework. However, the extent of how well they do this depends on the mining company and context.

3 Methods and Material

3.1 Research Design: Case Study Approach

This research uses a case study approach and design to collect and analyse data, and then generate evidence that answers the research question (Bryman, 2012, p.45). The specific case study is considered to be unique since GF in Peru practices have been well-recognised and are distinct from the other mining companies in the region (Bryman, 2012, p.70). There are many advantages to choosing this approach. The first most apparent advantage is that a case study approach allows for the analysis of a specific case. Vague generalisations are avoided, and specific contexts are studies to reach context-specific solutions to learn from. One way in which this is done is by relying on extensive qualitative data from ample sources, which is another advantage of a case study approach. The ability to use a wide range of data sources such as documents, reports, interviews. The validity in a case study approach is also usually another advantage since a number of perspectives from varied sources of data, to be described below, are included.

Despite these, case studies and data obtained to examine the cases contain biases, no matter if the data obtained from the company has been audited. Yin (2009) explains this as case study analysis' lacking rigor, which implies that the analysis can become obsolete, without following a systematic procedure, and unconsciously including biased data which will evidently influence the findings and conclusions. This limitation is recognised. Another disadvantage to a case study approach is the extent to which the research was involved in the case study. Although I tried to remain as objective as possible, it becomes difficult to run away from unconscious beliefs and values. Thus, case writing can become "unmanageable in any rational sense which lead to unreliable and invalid conclusions"(Krusenvik, 2016). Overall, despite these disadvantages the study is still deemed worthy of carrying out. The next section will describe the qualitative data collected and simultaneously use the data to understand the socioeconomic context and provide an in-depth background of the GF case study.

3.2 Materials

This thesis employed both primary and secondary data. The primary qualitative data collected came in the form of semi-structured interviews with Interviewee 1, a consultant for the Peruvian Ministry. Data was also collected from, interviewee 2, a former employee Gold Fields Cerro Corona Operations. The purpose of the interviews was to a) better understand the socioeconomic context of the mine and understanding GF's history in the region and b) to better understand the OXI mechanism and Canon Minero taxations schemes specific to Peru. These interviews occurred in the form of face-to-face meetings, telephone calls, and emails. The way in which the interviews were carried out encouraged interviewees to speak freely about their thoughts and opinions about the changes that the mining company had on the local communities and economy. The responses were recorded digitally, and simultaneously transcribed into a word document to avoid misunderstandings. More information about how the interviews were carried out can be found in appendix A.

Once the interview data was collected, I was able to determine which programs I wanted to focus on for the analysis. The programs examined were chronic malnutrition and anaemia program, CVC program, and the Bambamarca project. The reason for choosing these programs will become clearer in the next section that provides a contextual background. After selecting the programs, I was able to narrow down the pieces of data I would need for conducting the analysis. The main source of data came from secondary qualitative data, which was collected through internal documents, annual reports, web publications, public comments, and company presentations. Some of the reports from the mining company were found on the company website however, most of them were internal documents. The reports contained specific information related to GF's employment and social programs, and the overall impact in the community and local economy. NGO reports were another main source of data used. The limitation is that because the NGO works on projects for the mine thus, the information provided in their reports may be biased. No data from NGO's not working with the mine were found, given the lack of NGO's in the mining region.

Nevertheless, to address potential biases/errors, data was triangulated with independent sources of information which were of great value to the investigation. For example, newspaper articles about GF's social programs, general mining facts from the national statistics institutions, government reports and regional information about mining in Peru. These were all sources of information that the mining company could not intervene in and thus, another perspective and source of validity. All secondary data was selected starting from the year 2014 until 2018, because last year, GF will be changing their initiatives and practices relating to sustainability given the expansion of the life of the mine. Moreover, 5 years till this very day is a sufficient time span to access progress and impact on the local economy. For each program selection, there is at least one NGO report. GF reports contain information about all programs. The data collected in Table 3.2 is analysed in the findings and analysis chapter.

Table 3.2: Materials and Data Collected

Gold Fields	NGO	Independent
Gold Fields. (2014a). Group Community Relations and Stakeholder Engagement. Gold Fields. (2014b). Annual Report and Sustainability Report, Gold Fields. (2017a). Host Community Procurement and Employment. Gold Fields (2017b). Integrated Annual Report. Gold Fields. (2018). Community Relations and	Caritas (2017) Projects in Health and Nutrition Lutheran World Relief (2018) Lutheran World Relief Peru Swisscontact (2017) Annual Report Peru	ElComercio (2014) Gold Fields Builds the Most Modern Market in Cajamarca Ey (2017) Mining and Metals Tax Guide May 2017 KPMG (2016) Peru Country Mining Guide María Lasa (2016) Mineral Revenue Sharing in Peru

Stakeholder Engagement Handbook. Gold Fields. (2018a). Gold Fields FY 2018 Results. Gold Fields. (2018b). Community Relations and Stakeholder Engagement Handbook. Gold Fields. (2018c) Cerro Corona Mine Technical Short Form Report		Provincial Municipality of Hualgayoc and Bambamarca, (2016) Institutional Strategic Plan 2016 - 2018

3.3 Data Analysis

Finally, after all the data was gathered, a textual analysis was chosen as the tool of analysis, more specifically a content analysis. According to (Halperin & Heath, 2016, p.310), a "content analysis involves the systematic analysis of textual information." This appears to be the most appropriate method of analysis for this investigation because it allows the researcher to examine and interpret a wide range of data in a structured manner. Given this method, a mixed variety of materials were gathered.

3.4 Ethical Considerations

Ethical boundaries such as informed consent and respect of privacy were guaranteed. This means that the interviewees were informed about the research aim. The interviewees had the right not to answer questions or simply withdraw from the study. Finally, there was a confidentiality agreement provided to the respondents making sure that their names were not shown in the study.

4 Contextual background

The purpose of this section is to provide a socioeconomic and overall contextual understanding of the region and district in which GF operates. For this, the material described above was used along with Interview 2 (2019). This section will problematise several issues to be further discussed in the analysis. This section will ultimately determine whether through the programs GF implemented, the company is helping contribute to sustainable economic development.

4.1 Cajamarca Region

Cajamarca region is located in the northern Andes, about 800km north-east of Lima. The capital is the City of Cajamarca, which has a population of about 250,000 people. The population of the region is around 1.3 million people. The predominant economic activity in the region is agriculture and dairy, although, in the past 20 years, large-scale mining has become important.

Cajamarca is a relatively poor region by Peruvian standards. The Social Progress Index (Centrum, 2016) ranks Cajamarca 18th among 26 regions in Peru, with a score considered as "low" globally. The Index consists of three sub-components: Basic Human Needs, Foundation of Wellbeing, and Opportunity. Cajamarca ranks 23rd in Peru for Basic Human Needs, which captures nutrition, medical care, water and sanitation, shelter, and crime and violence. This score is considered "very low" globally. The region scores fifteenth in the dimension of Opportunities (which includes personal rights, personal freedom and choice, tolerance and inclusion, and access to advanced education) and ninth in Foundation of Wellbeing, which measures access to basic knowledge, access to information and communications, health and wellness, and environmental quality (Centrum, 2016).

4.2 Gold Fields Location

The Cerro Corona mine is located approximately 100km by road north of the city of Cajamarca in the District of Hualgayoc in the Province of the same name (Figure 4.2a). This is around a two-hour journey by car from Cajamarca city. GF is located on the top of mount Hualgayoc and covers 2795 hectares and the active mining area is 478.67 hectares (Gold Fields, 2017). The town of Hualgayoc is about 4 km by road from the mine entrance (see Figure 4.2b).

Figure 4.2a: Map of Cajamara Region and Hualgayoc District in Peru

Source: *Google Maps (2019a) Peru Tourist Guide (2005)*

Figure 4.2b: Golf Fields and District of Hualgayoc

Source: *Google Maps (2019b)*

4.3 Socio-demographic characteristics in Hualgayoc

According to the Hualgayoc District Development Plan, 2016-2018, the District has around 17,000 inhabitants, of whom 85% live in the rural zone. The town population was around 2,500 people – which has increased since the construction of Cerro Corona (Provincial Municipality of Hualgayoc and Bambamarca, 2016).

In the rural zones, the main economic activities include agriculture and cattle raising, mostly for dairy. Average lot sizes are considered small generally, three hectares or less, and much of the farming is semi-subsistence, with production for household consumption and families often supplementing their income for seasonal labour (Brereton, Bird & Ramirez,

2017). In the urban zone, mining is the main source of employment. The town also supports a number of small businesses, plus some government services (e.g., schools and health clinics).

Poverty continues to be a significant issue in Hualgayoc, as it is for the Cajamarca region as a whole. According to the area's Development Plan, 40% of children under three years of age suffer chronic malnutrition and the rate of anaemia is 28%(Regional Government of Cajamarca, 2017). Education levels are also low by national standards: 10.5% of males and 39% of women are illiterate(Regional Government of Cajamarca, 2017).

One of the programs GF developed to address this issue was in collaboration with Caritas NGO. In 2014, GF developed a program to address chronic malnutrition and anaemia in Hualgayoc (Gold Fields, 2014). The "For Children of Hualgayoc" program is developed in collaboration with local NGO Caritas del Peru. The program "benefited 730 mothers, 77 pregnant women and 883 children, 451 of who are younger than 3 years old" (Gold Fields, 2014). According to Caritas del Peru, in the district of Hualgayoc there was a reduction from 74% to 31% of 3-year-old children with anaemia(Caritas, 2017). Further accomplishments of the program are shown in the Table 4.3 below:

Table 4.3: Additional Accomplishments Caritas del Peru Project

Accomplishments Caritas del Peru Project		
• Workshops teaching how to prepare nutritional food for pregnant women and children according to their age (around 214 participants).	• Visits to families houses to provide them with information about care, attention and feeding children (about 743 visits). • Providing maintenance to improve stove functions (510 stoves)	• Training families about how to implement gardens to produce food for their consumption, and then implementing approximately 510 gardens with vegetables.

Source: (Caritas, 2017)

The way Interview 2 (2019) described the socioeconomic context, coupled with the report gather from the NGO, GF's actions were made read as heroic. However, through the lens of LED theory, has this program actually helped foster sustainable economic development? This will be discussed in the analysis.

4.4 The CVC Program

In 2006, GF Mine construction began, and during this time the population of Hualgayoc began to grow, as people returned to take advantage of the new opportunities (Brereton, Bird & Ramirez, 2017). From 2005 to 2010 for example, population grew from 98,275 to 102,328 habitants (INEI, 2011). Given the increase in employment, both indirect and direct at the time, one of the main focus of GF was relations with local suppliers. Supplier relations was specifically given more attention because in October 2006 a strike involving suppliers and entrepreneurs took place. Local suppliers and companies were dissatisfied because GF refused to contract the services from some of them. Despite commitments to hire locally, to meet

standards the company hired services outside the region to the perceived detriment of local suppliers. The tension led to strike blocks which hindered equipment to be moved to a new construction site. Interviewee 2 (2019) argued this to be because some of the GF employees had not clearly explained the required standards that local suppliers should meet to gain contracts with GF.

Nowadays, as claimed by Interview 2 (2019) GF has community offices in the town and encourages local people to visit when issues are encountered. This has been reinforced by programs such as CVC (Creating Shared Value), where issues have arisen with the community, "our response has generally been to try to understand the basis of these concerns and to then find a way forward, rather than relying only on technical arguments and denying responsibility" (Interview 2, 2019). GF together the NGO Swiss Contact, has developed a program to make it easier for local suppliers or others to begin their own business. In this way reducing the social tension and resentment that locals had held. In 2017, this project has impacted the community by increasing the number of competitive companies from 19 to 34, and 13 of these managed to expand into different markets, other than solely GF (Swisscontact, 2017).

Interview 2 (2019) states that it was precisely through this program that the company began to help develop the production of cheese and dairy production in the region. Many farmers in Hualgayoc work with cheese production and GF, (in partnership with Fondoempleo, Lutheran World Relief and Cedepas Norte) has developed another project stemming from the CVC program which increased the net income of producers involved in dairy production (Lutheran World Relief, 2018). Additional benefits for this project can be found in appendix D. Here it is important to remember that having a program in place is not the same thing as solving the problem. Has GF direct and indirect employment significantly increased through the program? Are local suppliers and businesses satisfied? If not, why has a program that has been in place for over 5 years today, still not significantly contributed to regional economic development?

4.5 Building a social license to operate

Cerro Corona has been able to operate largely without interruption for the last decade and maintains functional relationships with the local community (Interview 2, 2019). In fact, the mine not only maintains their social license but has also extended the life of their mine, of which the social license is inherently tied with. According to a community survey commissioned by GF in 2015, GF is viewed more favourably than other mining companies operating in the area (Gold Fields, 2018). However, this is very much a relative matter. The survey found that mining remains a contested activity in much of Hualgayoc Province, especially in the Area of Indirect Social Influence (AISI) which is dominated by Bambamarca. Even in the Area of Direct Social Influence (ADSI), where support for and acceptance of GF is stronger, there are significant levels of dissatisfaction (Gold Fields, 2018a). For example, in 2015, 64% of respondents in the AISI and 43% of respondents in the ADSI agreed with the proposition that "mining companies currently in the area should leave/close" (Gold Fields, 2018a). Only 9% of respondents in the IAI said that they approved of the work being done by mining companies (compared with 32% in the ADSI) (Gold Fields,

2018a). Surveys undertaken in 2012 and 2014 generated broadly similar findings (Interview 2, 2019).

The higher levels of support for mining in the ADSI indicates that GF targeted efforts to build and retain local support have to some extend prevented GF AISI from being supported for instance, the district of Bambamarca, located 30km away from GF (Interview 2, 2019). Around 2012, Bambarmarca has become known as the centre of the anti-mining movement in Cajamarca Region (Manglik, 2012). In fact, the current mayor of Bambamarca led the campaign against Newmont's Conga Project and is strongly opposed to any mining expansion in the Region(Engineering and Mining Journal, 2012). Surprisingly however, that did not stop GF from getting involved with the region. Another one of GF's most applauded projects, developed under the OXI mechanism (to be discussed in the next chapter), was the construction of the central market of Bambamarca finished in November 2014 (Gold Fields, 2014). It may appear that the construction of a market may seem like something basic, yet to this rural population, it created a big impact for local buyers and sellers (Interview 2, 2019). This is because similar to what is observed in Hualgayoc, one of the biggest problems in Bambamarca is also health related issues (Provincial Municipality of Hualgayoc and Bambamarca, 2016).

The construction of this market provided vendors and buyers a safe place to buy and sell their products, in a manner that meets with government health regulations (Gold Fields, 2014;Provincial Municipality of Hualgayoc and Bambamarca, 2016). As highlighted by Gold Fields (2014), the market directly benefited: 1) 144 merchants from the potato market and 184 merchants from the Central Market 2) 13,978 inhabitants of the city of Bambamarca 3) 80,820 inhabitants of the district of Bambamarca. Moreover, the construction of the Bambamarca market in collaboration with GF was recognised by even the mayor of Bambamarca. He claimed that although mining companies in the past had left horrible legacies, it must be acknowledged that there are mining companies (implying GF) that are truly responsible (ElComercio, 2014). For the mayor, who was initially leading anti-mining protests, to then recognise this development initiative in a positive light, relates back to the research question, how has GF's initiative managed to trigger this sustainable development for the community.

5 Findings and analysis

The contextual background has highlighted the significance of the research question by problematising and contextualising the socioeconomic context in Hualgayoc. In this section the material (or data) collected and presented will be analysed and used to answer the research question. This section analyses how GF has used the ICMM SD Framework in their programs and questions whether their actions actually helped trigger sustainable economic development. Given the evident limitation, this section will use the LED theory and the concepts embedded within the theory to critically analyse of how GF is actually helping to contribute to sustainable economic development.

5.1 Economic benefits from Gold Fields

Direct and indirect employment has been one major trigger for conflictual relationships for GF as highlighted above. The term capital in relation to a mining company is also known as mining contributions, which is the total amount of money paid for taxes, labour, and capital repayments (Grauwe and Camerma, 2002). The section argues that labour, combined with other forms of capital have greater potential for local economies than others.

In 2013, the 208,382 people employed by the mining industry fell to about 190,819 people in 2015 (KPMG, 2016). Thus, there has been an evident decline of employees operating in the mining industry (KPMG, 2016). In order to address the shortage and increase the number of workers employed, the government has implemented a new regulation that obliges mining companies to have no "more than 20 percent of a company's total workforce be foreigners" (KPMG, 2016). Doing this not only increases the employment rate but has other effects on the local economy.

For example, GF's direct employees receive yearly an increase in salaries (Gold Fields, 2018b). Increases in salaries are significant not only for the workers directly employed by the mine but also relates back to the indirect benefits. Since the workers live close to the operation, the mineworkers can spend most of their income in the local areas, and this can subsequently represent a large amount depending on the local economies' characteristics. Given that, mining salaries are already higher than the average national salary, they become even higher in a local level context. Moreover, at GF mineworkers are paid "remarkably higher" than the market averages, and the company also provides them with food and accommodations (Interview 2, 2019). Their expenses are significantly reduced, which means they will have more money to spend or save.

Assuming that they spend their money in the local economy, that by no means entails that the local businesses and locals have knowledge capital on how to invest the money appropriately. Krugman (1998) similarly argues that the benefits gained by mining companies increased levels of productivity do not occur equally or at the same pace as those found at a local economy. Moreover, the profit gained from increases in GF's productivity will not necessarily increase that of the local economy. This can possibly be explained through Bryden's (1998) theory, which highlights how human capital, more specifically knowledge capital is important for rural economic development, and thus not just the recirculation of financial capital.

GF, as highlighted in the contextual background, has indeed experienced an increase in direct employment. In fact, from 2014 till 2016, GF's direct employment has increased by 1.5% more than their indirect employment (Gold Fields, 2017). The increase is slightly worrisome since if an economy is heavily dependent on the mine's direct employment, it becomes harder to recognise the indirect benefits that may arise from the very presence of the mining operation, e.g., indirect employment opportunities through expansion of supply chain. Moreover, since the strike in 2006, GF appears to be doing more to engage with local suppliers, i.e., through their CVC program. However, the facts remain that in 2016, 24% of GF workers are locally employed whilst only 9% are local suppliers (Gold Fields, 2017). Hence, it appears that GF has not yet managed to exploit the competitive advantage in the regions or strengthen local knowledge capital. Moreover, although the program was designed to help local suppliers participate in GF's local supply chain, still only a minority are able to have this advantage. In this way, it is questionable to which extent GF is helping trigger greater sustainable economic development.

The problem of knowledge capital is further emphasised when looking more closely into local salaries and income inequality. It is clear that increases in local salaries can increase the demand for local goods and services (Terluin, 2003). Logically, this can then have a positive effect on local business development, since local economies can experience cash increases in their economies (Terluin, 2003). As a result, a mining company's economic contribution allowed for wealth accumulation in the local area, benefiting local economies. However, the reality is very different. Wealth accumulation is not enjoyed, and GF recognises this inequality and claims to "support the eradication of situations of inequality and discrimination both within and outside the company" (Gold Fields, 2017b). Direct employment mining salaries on the local economy (both indirectly and directly), has triggered resentment amongst locals especially in the past 2 years (Interview 2, 2019). By being employed by the mining company, employees especially have been pushed up the economic income ladder, reaching an income level that locals can only dream of reaching. Individuals receiving a higher average income spark resentment in the locals and increase social tensions in the region, given the income inequality (Interviewee 2, 2019). GF's local suppliers in this way have been looked upon poorly by those who are not locally involved from GF (Interviewee 2, 2019). Tensions arise because locals who are not involved in GF's supply chain or have unequal opportunities than direct employees, have a more difficult time sharing the same benefits as workers. Locals lack the human capital, social and knowledge, to be able to exploit the salaries/capital being recirculated and this makes it more difficult to start a business, obtain a competitive advantage, and ultimately sustainable economic development. Moreover, Bryden (1998) argues that rural economic development needs competitive advantages and to obtain this, different types of capital are needed.[2]

Another potential issue that was discovered when analysing GF's CVC programs is related to local diversification. As highlighted by Lowe, Murdoch and Ward, (1995, p.91) in the analytical framework, the concept of diversification becomes an important aspect to

[2] "The exploitation of social and cultural capital stimulates employment growth. The exploitation of local knowledge capital stimulates employment growth in the production related to this local knowledge capital" (Bryden, 1998, in Terluin 2003, p.334). Refer to the analytical framework for more detail.

consider when analysing GF impact on local economies. This is because without diversification locals would grow reliant on the mine, which is a limitation for the regions long-term economic development. However, as brought up during the interviews, diversification is not always favourable for the local economy (Interviewee 2, 2019). GF is located in a remote area which lacks sufficient economies of scale. GF, through their CVC programs, is trying to impose unnatural diversification by expanding their indirect employment and local suppliers, it is likely that the effect on such a small economy is not the desirable one. For instance, national effort to try and diversify the economy through import-substitution industrialisation (ISI) policies in Latin America (Hadass& Williamson, 2001). Otherwise stated, when local skills are concentrated on resource extraction, it creates mining dependent towns as oppose to trickle down into other sectors in the economy (Prebisch, 1950; Rostow, 1952; Sunkel, 1989). However, helping to expand the network of local supplier for GF's supply chain can also have negative consequences for the region.

Instead, this is where initiatives like developing regional cheese and dairy production could appear to be more favourable. Relating back to Bryden's theory, through this project GF is helping locals establish a competitive advantage by exploiting environmental capital (as cheese is a locally produced good) and giving locals knowledge capital for running their business. Perhaps GF's efforts should not be focused on diversifying a whole economy through initiatives related or even unrelated to their supply chains. But rather focus on specific initiatives that can help develop regional competitive advantage which does not rely on the mine. This should be done through "the exploitation of local raw materials [to] stimulate employment growth in the production related to these raw materials" (Bryden, 1998, cited in Terluin, 2003, p. 334).

The CVC program facilitates the development of new forms of capital. GF's CVC program incentivises the local community, both related and unrelated to their supply chain, providing an opportunity to start-up their own business by providing them with "training, technical assistance, certifications", and overall knowledge on how local can wisely spend accumulated capital (Swisscontact, 2017). However, this program given the materials and findings presented has still not significantly increased local suppliers since 2014 when compared to local employment figures (Gold Fields, 2017). Moreover, problems related to local salaries and income inequality is apparent, and potential causes for this resentment among locals lies within the lack of knowledge capital program such as CVC can provide. Furthermore, it is even worth questioning whether increasing local suppliers is favourable for the local economy, as too much diversification in such an underdeveloped region may not lead to sustainable economic development but rather more dissatisfied locals. Whilst it is true, according to the ICMM SD framework and the LED theory, it is important that GF makes a context-based decision because too much diversification in a small local economy may not be the right decision. Therefore, although labour does contribute to local economic development in the region, other forms of capital can be given more importance as they too have great potential for local economies. For instance, by focusing more on environmental and knowledge capital, GF can possibly attain sustainable economic development more quickly.

5.2 Local economies

Mining companies have received heavy scrutiny, and as a response, the LED theory and ICMM SD framework was developed. The LED theory, as highlighted in the analytical framework, states that "rural diversification, bottom-up approach, support for local business, encouragement of local initiatives and local enterprises, and provision of suitable training" is important for regional economic development (Lowe, Murdoch & Ward, 1995, p.91). Similarly, the ICMM principles have similar assumptions (ICMM, 2018). However, one must stop and question the extent to which mining companies can bare all the responsibility for local economies' development. GF, in response to the research question, has indeed tried to foster sustainable economic development.

GF, through their CVC program, has tried to diversify economies, develop local businesses, and simultaneously provide training and knowledge capital to locals. However, as highlighted in the previous section, there are still problems in relation to this program. Here it is being argued that GF has not managed to significantly increase their local suppliers for instance, but to what extent is this solely their responsibility?

It is evident that the existing preconditions in Hualgayoc are less than favourable. In GF, the outcome from interactions between the mine and the local economy has been heavily influenced by the socioeconomic conditions (Interviewee 2, 2019). As a general rule, where the integration is greater (e.g., increased direct mining salaries, and demand for local supplies), the impact a mining company can generate on the local economy is also greater (Terluin, 2003). Moreover, being located in a mining cluster region, as GF is, also helps a mining company generate more economic activity (through agglomeration effects) given the increased demand (many buyers for the local suppliers) (Krugman, 1991).

However, this is not the case for GF (Interviewee 2, 2019). GF's operation is extremely dispersed (Gold Fields, 2018b) and as argued by Interviewee 2 (2019), the economic potential for expanding the supply chain to a local level is not only restricted by the distance between mining operations in the region but also infrastructure. The district of Hualgayoc has insufficient communication, lack of infrastructure (e.g., roads) and modes of transportation(Regional Government of Cajamarca, 2017). These barriers hinder local's supplier ability to reach economies of scale and other buyers for their goods and services. Therefore, most supplies are imported from abroad, and thus the benefits of such purchases are not necessarily enjoyed locally (appendix C). For instance, even the food consumed at the mine is imported (Gold Fields, 2017a). See appendix C for more details.

In this section, it is being argued that GF should not be the only one responsible for the development of the community. Should a private entity really be in charge of providing roads and an education system?[3] Similar can be argued in relation to the human capital in the region. The education and poverty levels are very low in Huayalyoc, this further impedes local's ability to absorb new knowledge capital that GF can provide through their programs. In 2017 alone, GF paid millions of dollars to investments in infrastructure and programs developed with NGO collaborators (Gold Fields, 2017b, p. 122). When looking closer at their anaemia programs, one observes significant reductions of anaemia in the district. Moreover,

[3] The High-Performance School in Cajamarca is another UD$22.4 million-dollar project GF helped co-fund (Gold Fields, 2018a)

they have taken it upon themselves to also contribute to the development of environments and healthy homes of the target families, improving sanitary management inside the homes, eliminating factors such as pollution with the use of improved kitchens, laundry and better order-disposal of kitchens, and other areas within housing to improve good health in the child and family (Gold Fields, 2017b, p. 84). Anaemia is still a life-threatening condition in the district. Although GF and Caritas NGO worked collaboratively with the anaemia program which has been ongoing for nearly 5 years now, anaemia is still present in the region. However, what role has the ministry of health and education played in helping address these issues?

GF operates in difficult conditions and has still tried to foster sustainable economic development by addressing local issues such as anaemia through a bottom-up approach and also contribute through programs such as the CVC, to local human capital. However, the government also plays a role in this development. For instance, if the government would more contribute to infrastructural investments," it would become easier for us to establish better relationships with local suppliers" (Interviewee 2, 2019). In this way, if and when the mine closes, there could be other mining companies to produce for; also providing suppliers with production security. There are many barriers impeding sustainable economic development in the region, some of which GF cannot be the only entity holding the responsibility. GF and the local government need to collaborate and, in this way, become a facilitator to the overall local community.

5.3 Taxes, direct government payments, and institutional arrangements

One well-known example of this collaboration, recognised even in national newspapers, was the construction of the Bambamarca project (ElComercio, 2014). The Bambamarca market was developed under the OXI (work for taxes) mechanism. OXI is a public investment mechanism through which a private company is responsible for the financing and/or execution of projects prioritised by a public entity. The company recovers its investment through certificates that can be used for reduced payment of income tax. Here it becomes clear that there is an incentive for mining company through this institutional arrangement to work closely with locals towards a development projects and the local economy. Similarly, as argued in the analytical framework, innovative arrangements involved the interaction between both the public and private sectors. It is precisely arrangements like these that can help trigger sustainable economic development in a region.

The problem with arrangements like these is that it is becoming more difficult to control the project in which money gets invested into. In fact, Interviewee 1 argues that in allowing the company to decide the projects to invest in there is a "conflict of interest." Otherwise stated, the company will only invest in projects that interests them, and not that of the local economy. He also claims that in not involving the central government, there is a risk of collision between the regional government and the mining company. In addition, the company might increase the cost of their project unnecessarily as a means to decrease their taxes returns.

Interviewee 1 (2019), argues that the Canon Minero is an efficient form of mining taxation that facilitates the central governments control to tackle issues that are of national

concerns, regionally. In addition to avoiding the problems highlighted above, in Peru, 50 percent of the income tax mining companies pay to the Central Government is remitted to the Canon Minero(María Lasa, 2016). The Canon Minero is a source of financing destined to public investment projects, which have the purpose of generating development to local regions in Peru. This taxing mechanism is more favourable for the government as it can be used to finance infrastructure projects (e.g., hospitals, police stations, prisons, and schools) which benefits any region in Peru, but not necessarily the region where the mine is located.

This, as argued by Interview 2 (2019) is precisely the problem. However, Interviewee 2 (2019) argues that the "Canon Minero" is actually a very inefficient way for the government to contribute to economic development, and while it may look good on paper the reality is much different. Under the Canon Minero the tax money is allocated on a project basis, meaning that only if the regional government has approved a project, the funds will be transferred. Interview 2 (2019) highlighted how in a country like Peru, it is not unusual for money to disappear in the form of corruption.

It is clear both interviewees have different opinions about the best taxation mechanism. However, going back to the LED theory, it is clear that taxes paid through innovative institutional arrangements enable GF to better able to collaborate and interact with multi-level stakeholders. Otherwise put, reaching regions full economic potential requires involving many actors, such as the local government (Humphreys, 2001; Sachs, 2008). For this to occur, a centralised approach, such as the Canon Minero may become less favourable than the OXI mechanism, a bottom-up initiative.

Overall, mining companies and local economies would evidently benefit more from greater revenues flowing back to their local areas, since this money would increase local living standards, for instance. However, as shown in the analysis above, local conditions are underdeveloped and tax revenues have not returned down the local economy, to a sufficient extent, for reducing anaemia for instance. In a perfect world, "central governments are the most important distributors of resources for public infrastructure, social security, education, etc" (Keating, 1999 in Terluin, 2003). However, in Peru, the fund that distributes this is the Canon Minero and the underdevelopment in Huayaloc makes one questions the efficiency in this centralised approach.

Although the taxation debate in developing economies has revolved around the right to "share of rent between companies, central, and local governments," (Auty, 1997; Bryan, 2007; Ross, 2001). This section puts forward the idea of changing the debate discuss around the most efficient use of these revenues, possibly through other institutional arrangements, such as OXI. It became apparent that governments need to take a more sustainable approach to taxation, one that recirculates the government revenues back into local regions, and one that sufficiently incentivize investment in the mining sector in the long term (Humphreys 2001). The Canon Minero in Peru does not appear to do this. The way GF used the OXI mechanism enabled collaboration with local governments, to combine forces and synergies and work together towards improving health and safety standards, through the construction of the Bambamarca market. This aligns well with the community development theory, which is key for sustainable economic development.

6 Conclusion

Mining companies have changed the way they operate to embrace a more sustainable approach. In other words, it would be nearly impossible to find a massive mining operation that claims to not be sustainable. One way this can be done is through the ICMM SD Framework. By focusing on a single case study, this thesis was able to access the functionality of the SD Framework that GF has adopted and more thoroughly analyse how the company through it triggers sustainable economic development.

The previous section analysed how GF, under the ICMM SD Framework, tried to foster sustainable economic development through a number of programs. This framework in mining is the most recent framework that companies have been adopting (MMSD, 2002). GF Peru has adapted their programs to align with the ICMM SD Framework. This framework goes hand in hand with the LED theory. Furthermore, theories embedded with LED, such as Bryden's and the community development theory, also supported the analysis. To show this, the thesis has highlighted examples of how GF's programs and initiatives have strengthened its local supply chain, begun to diversity economics, contributed to human capital, formed collaborative institutional arrangements, and contributed to direct and indirect employment.

The analysis was divided into three parts, which can be summarised as follows: Part 1: As a response to the strike in 2006, GF created the CVC program to help locals become part of GF's supply chain (indirect employment). However, until this very day, there are more locals directly employed by the mine than indirectly. This triggered local resentment as locals wanted to be part of GF's local supply chain to earn greater income, but because locals felt they have unequal opportunities in relation to direct employees. The CVC program tried targeting this resentment by providing community members with knowledge and social capital and exploiting the immobile forms of capital. One project developed was related to regional cheese and dairy production. This project developed through the CVC program was GF's way of using an immobile form of capital to help the local economic obtain a competitive advantage. This was arguably better than trying to simply increase the local supply chain, because as argued, too much diversification in such a small economy, may not be favourable.

Part 2: The analysis and lessons learned from part 1 sparked new thinking when discussing the local economies. By referring back to the contextual background, here it was determined that GF's has tried to foster sustainable economic development through a number of programs. However, it was pointed out that the responsibility to successfully end anaemia in the region, diversify the economy, and support for local business, is not only GF. The local government and national government play a big role, and together both GF and the local government can collaborate to improve socio-economic conditions necessary for triggering economic development. This was then addressed more thoroughly in part 3.

Part 3: Local coordination and collaboration gained much importance and more important analysing how GF tried to foster sustainable economic development. This section found that it is more effective to strengthen diverse possibilities for local institutional structures, rather than having to go through central government (Acemoglu, 2003; Amin & Thomas, 1996, p.255–281). A clear example of this was their Bambamarca project as it was

developed in collaboration with the local government to address specific local development plans and challenges.

In sum, the study of GF has suggested that large mining operations have the potential to be catalysers of economic development in the region. There is sufficient evidence to believe that GF, through their three programs, has tried to foster sustainable economic development in the region, transforming a finite activity into initiatives and programs can have a long-term beneficial effect in the region. Nevertheless, as shown in the analysis in part 1 and 2, the LED Theory and the ICMM SD Framework has predefined a strong set of expectations, not always realistic when implementing in a local context. Thus, it is important that the company modifies their strategies to best fit its context since mining looks very different in different settings. The ICMM SD Framework should be used as a backbone and be adapted to fit the context of the mining company.

6.1 Final remarks

In response to the research question, here are the three ways in which GF, operating under the ICMM SD Framework, with the help of NGOs and partnerships cooperation, contribute to local economic development and tried to do so in a sustainable manner through a number of programs.

1. GF has shown to localise several of their initiatives, by creating programs that address local needs.
2. They then formed important collaborations with local government actors to increase the human capital.
3. They have focused on both indirect and direct forms of employment, but more important, GF has increased knowledge and skills in society. Moreover, they have used local immobile capital.

6.2 Suggestions for future research

Suggestions for future research could be to include the environmental aspects and address the positive and negative impact of large mining companies. Furthermore, given the scope and time constraints, this investigation did not include interviews with the local communities, which leaves out an important analytical perspective of the impact that the mining company could have had. A gender perspective was not included or focused on. Future research could include these aspects as a way to broaden findings.

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8 Appendices

8.1 Appendix A

Interview Guide

Step 1: Presentation and description of research

1) Present myself as the interviewer
2) Describe the research study and its purpose
3) Inform the interviewee about confidentiality and anonymity
4) Ask for permission to take notes, record, and save email and messages exchanged.

Step 2: Interviewee introduction

1) Ask interview to describe himself and his position in the government or company
2) Ask the interviewee to describe some of the work carried out at his depart in the organisation and the main purpose of the organisation
3) The semi-unstructured interviews both began with one question as a starting off point. From this question, a conversation approach was carried out, and relevant information form this was use in the research. Both interviewees were asked to discuss around the advantages and disadvantage of OXI programs vs the Canon Minero. From this question, it not only became clear which initiatives the interviewees favoured, but it also became easier to make associations with the endogenous growth framework. Interviewee one was additionally asked to provide a socioeconomic context since the beginning of the mining operation till present day. Questions that came to mind as the interviewee described the context were asked.

8.2 Appendix B

Figure 1: Classification of Production Function and Theory

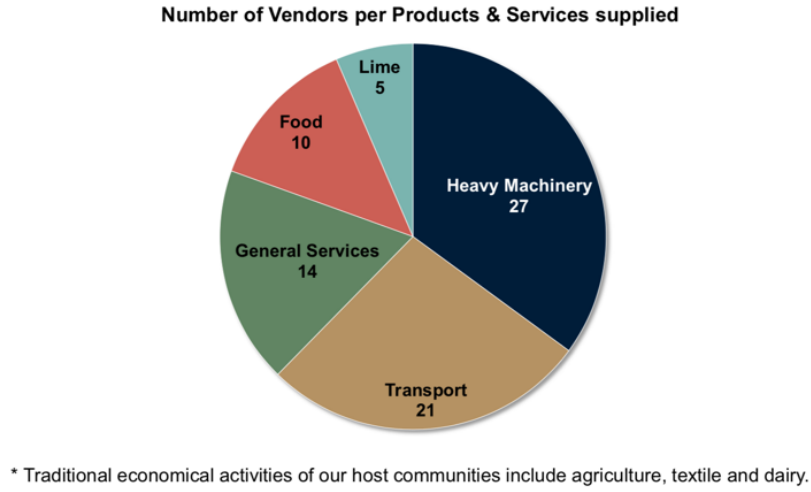
Production Function	Theory
Y = f (AE, L, K)	• Exogenous Growth Theories • Modernisation Theory
Y = f (LM, L, K)	• Endogenous Growth Theories • Local Economic Development • Community Development Theories

*Y: production; L: labor; K: capital; AE: agglomeration effects, which occur due to external factors or volume economy; LM: local milieu which means factors such as space, human capital, technology, networks, culture, politics etc.

Source: Adapted from(Terluin, 2003)

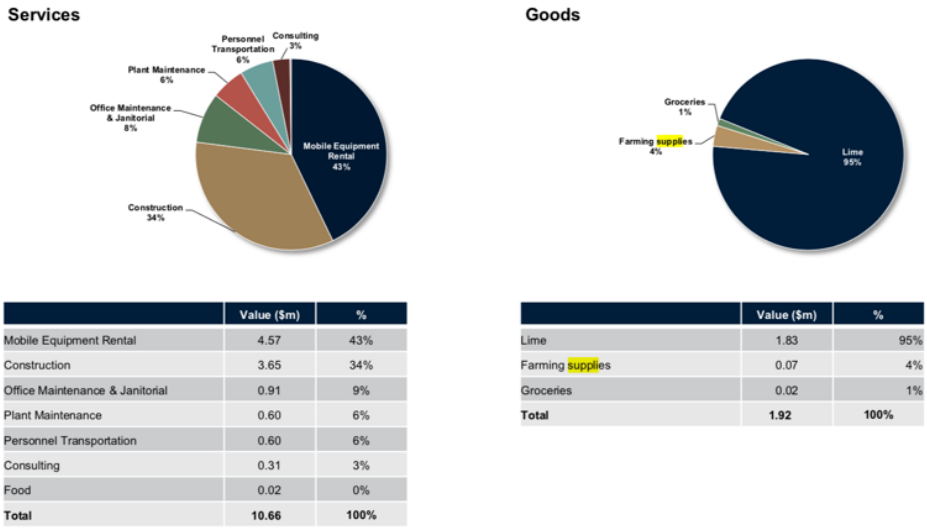
8.3 Appendix C

Figure 2: GF Host Community Supply of Good and Services



Source: Host Community Procurement and Employment Plan

Figure 3: Analysis of Gold Field's Host Community Procurement (2016)



	Value ($m)	%
Mobile Equipment Rental	4.57	43%
Construction	3.65	34%
Office Maintenance & Janitorial	0.91	9%
Plant Maintenance	0.60	6%
Personnel Transportation	0.60	6%
Consulting	0.31	3%
Food	0.02	0%
Total	**10.66**	**100%**

	Value ($m)	%
Lime	1.83	95%
Farming supplies	0.07	4%
Groceries	0.02	1%
Total	**1.92**	**100%**

Source: Host Community Procurement and Employment Plan
Source: (Ampudia, 2016)

8.4 Appendix D

This project has steadily increased the income of 510 producers, has equipped and improved the infrastructure of thirty-two artisan cheese plants with stainless steel equipment, has strengthened the skills and business management skills of 480 milk producers and cheese, increasing its production from 6.4 to 8.8 l per cow / day, has increased the cheese production of thirty producers from 500 to 800 kg / month, has achieved that the producers have certification and sanitary registration, it has created 490 permanent jobs and has increased the net income from milk sales of S /. 1000 to S /. 1600 and of cheeses of S /. 89 to S /. 395, detailed (Lutheran World Relief, 2018)