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**IS SUSTAINABLE DEVELOPMENT A FACELESS RHETORIC?
AN ASSESSMENT OF EDUCATIONAL SUSTAINABILITY AT
THE PORGERA MINE,
PAPUA NEW GUINEA.**

**A THESIS PRESENTED IN PARTIAL FULFILLMENT FOR THE
REQUIREMENT FOR THE DEGREE OF MASTER OF PHILOSOPHY
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Abstract.

Mining development has no doubt contributed immensely to the local and national economies throughout the world and has transformed many developing countries to be developed. In Melanesia especially Papua New Guinea, a number of large scale world class mines occur in remote, isolated locations where the local communities are often vulnerable, poor, illiterate and do not have access to basic government services (for many years). When mining operations arrive in their locality, local people see and recognize mining as the only development opportunity and hope for improved livelihoods.

However, the social and environmental impacts and disruptions of livelihoods from those large scale mines are often severe and can last a life time. Many local people do not realize these consequences in the first instance. In a bid to help maintain people's livelihoods, the package of mine benefits for local communities typically includes sustainable development projects and programmes devised by companies. Most of these benefits are corporate gestures colorfully written up in company sponsored reports in contrast to the realities experienced in the communities. There is little literature written on the realities and impacts of mine benefits on the livelihoods of local people and their experiences from their perspectives. This research attempts to address these issues in the context of the education sector and explore experiences and perceptions of locals in view of post mining.

This study looks at the education sector within the Porgera gold mine in Enga Province in PNG. The focus is on landowner communities and stakeholders' attitudes and commitments towards enhancing the education sector from a sustainable development perspective for the local people. Qualitative research methods were used for this study, mainly semi-structured interviews and obtaining information from the key stakeholders involved within the Porgera community education system. The findings from this study indicate that, although substantial benefits and resources appear to be available, the education sector has not been given adequate support in a systematic and coordinated manner which has led to the future of the education sector being uncertain and unsustainable in light of preparations towards mine closure.

Dedication

This thesis is dedicated to my two girls whom I owe much for being away from them for two long years; Meagan Chachu Java and Nakita Isako Java and to my wife Triphina. Importantly, I salute and dedicate this thesis to a man who always had the strength and faith in the wonders of education and believed that that one day I could pass through that journey and that he could bear witness, which he did. Dad you're an inspiration all along and I want to say thank you. It was through your faith, perseverance and endless prayer that I obtained the benefits of education. This is for you Mr. Java Loluave. God Bless your heart and I remain thankful in a million ways.

Finally, to those from remote and isolated communities though rich in mineral wealth, yet struggling, education is surely the way forward. Education is really life and so much important as life itself. Education is redemption in all its forms. Embrace it and invest more and continue to invest more. It is not a wasted effort. It pays insurmountable dividends well into the future. It is my prayer that Multi-National Cooperation's, all levels of governments and Land Owner Associations give landowners educational development a great more development priority, more than any other development programmes for communities around resource development areas especially in Papua New Guinea.

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This study was made possible with the support of many people, both in New Zealand (NZ) and Papua New Guinea (PNG). Foremost, this reveals another testimony of the fulfillment of Gods own plan for my life and I wholly thank him for his blessings upon my life. In addition, firstly, the staff from the Institute of Development Studies (IDS): my supervisors, Associate Professor Glenn Banks for all your valuable comments and time using your vast knowledge and experience of the mining industry in PNG to assist me greatly and special thanks to Dr. Maria Borovnik for all your critical comments, feedback and support and Professor Regina Scheyvens for all the support over the two years at IDS, Massey. I thank my family for their support, especially my elder brother James Yaru. I wouldn't have excelled without you. You have been very supportive all alone in my educational journey. I also acknowledge the support of my wife Triphina who has been so good and supportive. Your support has enabled me to complete my studies.

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ACRONYMS

AusAID	Australian Agency for International Development
ADB	Asian Development Bank
CODE	College of Distance Education
CSR	Corporate Social Responsibility
DODL	Department of Open and Distance Learning
DFID	Department for International Development
EIA	Educational Institutional Administrators
EFA	Education for All
EPG	Enga Provincial Government
IDS	Institute of Development Studies
IHD	Integral Human Development
JICA	Japanese International Cooperation Agency
LLG	Local Level Government Council
LNG	Liquefied Natural Gas
MDG	Millennium Development Goals
MNMC	Multi National Mining Corporations
MTDS	Medium Term Development Strategy
NEP	National Education Plan
NDOE	National Department of Education
NZ	New Zealand
NZAID-	New Zealand Agency for International Development
PDA	Porgera Development Authority
PNG	Papua New Guinea
PJV	Porgera Joint Venture
PG	Provincial Government

PLA	Porgera Landowners Association
PDWA	Porgera District Women’s Association
SIDA	Swedish International Development Agency
SD	Sustainable Development
SLA	Sustainable Livelihood Approach
TCS	Tax Credit Scheme
UNESCO	United National Educational and Cultural Organization
UNDP	United Nations Development Programme
UK	United Kingdom
UN	United Nations
WB	World Bank

Table Clarifying Research Participants Coding and Acronyms

Institution/Organization	Code
Educational Institutional Administrators (Includes headmasters, coordinators, principals, managers of key educational institutions within Porgera).	EIA
Key Mine Stakeholders includes management and key staff from Porgera Joint Venture, Porgera Development Authority, PLA, PDWA, Porgera District Education, Porgera Local Level Government Council, Provincial and National Government.	MKS
Porgera Landowner Youths, Landowner Parents Landowner Elites	LOY LOP, LOE
Catholic Church and the Seventh-day Adventist Church clergies	CL

NB: Numbers attached to codes infer more than one institution or individuals. For instance, EIA1, refers to school one, school two has EIA2 and so forth.

Prologue

I have seen mines around the world. I have seen the effects they have on the lives of people who live in the vicinity of the mine. I have seen the lives of those people after the gold, silver, copper, oil and gas is gone.

A couple of years ago I travelled across the United States by train and by car. That was a long journey. Over 3000 miles and even on good roads that were long and endless. I saw a lot of things on that trip. I met a lot of people. I went to a lot of places, but the one place that impressed me more than any other was a small town in Nevada called Virginia City.

You know back in the 1800s, Virginia City was right at the heart of one of the world's largest silver mines in the world. At that time Virginia City was really a bursting city. It had at one time in the late 1800s, it had the highest per capita income of any City in the United States, which means it has the highest per capita income of any city in the world. Imagine that!

Virginia City was the richest place in the world. But what is it today? Today it is what Americans called "ghost" town. It is a town full of ghosts of people who were once rich but who died poor and destitute. Today almost no one lives in Virginia City; they just go there to open the shops for the tourists who want to see what a real Wild West boom town looks like. But Virginia City is dead. All millions, the billions of dollars that went through that town made no difference in the long-run.

Source: (Sir Julius Chan (November 2009): Article retrieved from the Sunday Chronicle, Port Moresby).

CHAPTER ONE : INTRODUCTION AND RESEARCH OUTLINE

1.1. Introduction and Overview.

The mine is operating and running so we see things moving here and there and there is cash flow and people seem to float and nobody seem to care. When the mine ceases to operate and gradually winds down, all these activities eventually will come to a stop. When things cease to exist and operate, local people will come to their senses and a feeling never felt before will dawn on them. Cash flow will stop and then tears will begin to flow (LOE1))

The above local Porgeran elite statement is directly in line with Sir Julius Chan's statement in the prologue (a former Prime Minister of PNG who is also the current Governor of New Ireland Province which hosts the Lihir Gold Mine¹). Their views portray what the future would be like for most PNG landowners if they do not make the most of mine development opportunities to enhance sustainable developments within their communities before the mines close. Sir Julius Chan questions whether this was the kind of future we wanted to see in our mining townships and the surrounding communities. Whilst mining could claim to be the means to modernity, can it really guide those landowner communities to be modernized when their livelihoods were forever altered and destroyed? Empirical evidence suggests that some of the world's most poorest and depressed people were found in communities where mines had previously operated. This is despite of the existence of vast opportunities brought on by mines. Therefore, Professor Richard Jackson reiterates that "true sustainability and development for local communities rests within the power

¹ The Lihir gold mine is on the island of Lihir, in Papua New Guinea's (PNG) New Ireland Province, about 700km north east of Port Moresby. The principal asset of Lihir Gold Ltd, the mine was managed by a subsidiary of Rio Tinto until late 2005, since when it has been operated directly by Lihir Gold (<http://www.mining-technology.com/projects/lihir/>).

of companies and this comes from within an organization. Skills imparted are portable and lasts a lifetime' (Post Courier, 2010 field work). In this context, this study looks at educational development within communities on the fringes of the Porgera mine with the view to assess the impact of the mine on educational developments. This chapter proceeds with the presentation of basic country context, then a brief narrative account of PNG development challenges followed by a brief discussion of mining developments and how educational developments could be addressed through mining. The focus and purpose of this research, the setting and the significance of the fieldwork in terms of looking at indigenous local development as well as sustainable development is then highlighted next. This is then followed by outlining limitations of the research. This chapter concludes with the overview of the thesis structure.

1.2. Context of the Study- Papua New Guinea

No country in the world offers the stunning diversity and contrasts of PNG with more than 800 languages and a land mass of 465,000 square kilometers (Connell, 1997, p.1). PNG consists of the eastern half of the island of New Guinea with a population of well over 6.5 million people (Connell, 1997, p.1). About 80% of the country's population lives subsistence lifestyles with fewer or no facilities to reflect modern life (PNG Country profile, 8th March 2010 from BBC.co.uk). However, PNG is blessed with an abundance of natural resources. Since gaining independence in 1975, the Government has depended on its natural resources (oil, gas, timber and mineral deposits) for its economic growth and development. Natural resource extraction has been a thriving industry for the developers and the government. The irony however has been that the trickledown effect of such benefits appear to exist only on paper as it has not translated into tangible benefits for the bulk of the population (Filer and Imbun, 2009). Given the country is rich in natural resources, PNG's constitution calls for the equitable use of benefits derived from these resources for all citizens of the country. The fundamental objective of this is to enable people to realize their aspirations to develop an economy that will give them equality, dignity, and self-respect, so that they can be in control of their own lives (Samana, 1988). With a wide range of stakeholders involved in the industry, it is anticipated that working relationships and partnerships will help people achieve these constitutional objectives. Despite the country's vast pool of natural resources at its advantage for development,

PNG, like other countries flushed with abundance of resources, continue to face enormous development challenges.

1.3. Papua New Guineas Development Challenges

PNG experiences greater development challenges to achieve development and equity across the country quiet often (Connell, 1997, p.221). These challenges include amongst others, governance issues, political and administrative leadership issues both at local and national level, physical geography of the country and technical and financial capacity challenges. Other challenges such as those of implementation and coordination and information management are regarded as being equally detrimental to PNG's development (NZ AID, 2009, AusAID, 2002). Taking into consideration these development challenges, the government developed the Eight Aims plan prior to independence to address some of these challenges (see Fitzpatrick 1985; World Bank 1978, p.66) as cited in Chand & Yala (2009, p.44). This plan subsequently became the basis for the Five National Goals and Directive Principles which were included in the preamble to the country's national Constitution. These aims and directive principles reflected amongst others, the government's concerns for equitable and sustainable growth, the fair and equitable use of the benefits of natural resources across the whole population, and the protection of the country's environment (Chand & Yala, 2009; p.44).

Early policy making in PNG embraced with rigor the preambles of the Constitution in relation to equity in income distribution and access to social services, with particular observation of the main enabling law which stated that 'our national wealth, won by honest and hard work, be equitably shared by all' (Chand & Yala, 2009, p.53, Samana, 1988, p.1). Interestingly though, PNG has continued to fail in living up to its policies of accumulating and distributing equitably wealth derived from its resources. Firstly, the anticipated wealth seemed far from reality and we have not made the most of our resources and wealth which made our destiny remained unfulfilled' (Morauta, 2000, p.3). Thus, economic policy making and the government's commitment to its people seemed to have failed over the years. Samana (1988, p.4) forewarned that if the state depended too much on the mines and on large scale resource development

projects, it would ignore development of its people, that is human development, but would instead promote 'devil-upment'.

Although PNG hosts world class mining projects, the state of the social indicators, local economies, infrastructure and the provision of basic goods and services such as health and education have seen a gradual decline since independence (Gelu, 2006; p.413). Reforms undertaken by successive governments have proven futile and have provided little to the economy and general development outlook (Gelu, 2006; p.414). Despite efforts to institute reforms, the country has a poor record of economic growth with a very low ranking in global indicators of human development (Patience (2005) as cited by Gelu, 2006, p.415). This in part is due to poor public sector policies and reforms as noted by Turner & Kavanamur (2009, p.19) who argued that public sector reform has been a case of "poor policy practice that shows a major hindrance in implementation". Such inefficiencies within the government systems have implications on the mining sector which often failed to directly improve the livelihoods of the people affected by mining operations.

Apparently, the government often lacks the capacity to regulate and ensure proceeds from mining and other resource developments were invested in long-term sustainable developments projects and programmes for the communities. This often led to the 'creation of landless people' in their own land due to shifting and endless relocations, where mining benefits seem to benefit only a few people leaving out the rest (Samana, 1988, p.5). Inconsistent government policies affect long-term broad-based economic developments. Therefore, Togolo (2006, p.279) argues that policies must be consistent to ensure mining benefits are used to build sustainable and durable productive capacity for genuine economic growth and poverty alleviation. In summary, sustainable developments are achieved when backed by proper legislation, planning, resources and greater participation addressing development needs such as education and health.

1.4. Addressing Development Challenges through Mining.

World class mining projects in PNG include the Bougainville Copper (now ceased), Ok Tedi, Porgera, Lihir, Tolokuma, Ramu Nickel, and the Morobe mining. Along with these projects, a central part of the governments' current agenda is the Liquefied

Natural Gas (LNG) project undertaken by Exxon Mobil. Although mining provides substantial economic benefits, the extensive environmental destruction and social disruptions are also alarming (Banks, 2008, Lagisa & Scheyvens, 1999). However, in so far as positive impacts are concerned, it is presumed that mining contributes significantly to both local and national developments (Filer, Banks, Burton, Imbun, Jackson). While mineral resource developments have transformed PNG as a nation over the last three decades (Banks, 2003, p.224, Connell, 1997, p.2), the realities in most mining communities tell a different story. Whether mining benefits have truly transformed landowner's livelihood and will be sustainable after the mines have closed, have been a question of debate. It is clear that a substantial amount of monetary and non-monetary benefits are made available for community developments by Multi-National Mining Corporations (MNMC) for development purposes. Whilst, such provisions can either be a gesture of Corporate Social Responsibility (CSR) or serve as compensation package for environmental destruction or social dislocation, local people are often left in despair despite these (Imbun, 2006). Landowners dilemmas are attributed in part to PNG's weak institutional capabilities and capacities that make the country a conducive environment for illicit financial flows offshore, leaving landowners desolated and in destitute (Dobers & Halme, 2009; p.237). Given the communities' isolation and remoteness, communities view mining developments as their only means to mainstream development and economic opportunities out of negligence and desperation for access to public goods and services (Banks, 2009, Lagisa & Scheyvens, 1999). However, it seems landowners only get to gain limited long-term economic benefits from mining activity on land that they own, placing high value on non-economic and unsustainable benefits from mining agreements.

Consequently, this thesis seeks to focus on one development aspect increasingly supported by the mining industry which is the education sector. The study focuses on the Porgera gold mine landowner communities in view of education as a sustainable development priority. In particular it looks at how the education sector has been supported and developed by stakeholders as a key mining development benefit provided for the local communities. Importantly it seeks to identify and discuss the roles and contribution of stakeholders within the Porgera gold mine. Furthermore it assesses the extent to which landowners themselves were able to harness the benefits of mining to enhance investment in educational facilities with appropriate policies for

the benefit of current and future generations, maximizing various mine benefits for sustainable development. Education as a global development goal is pursued to create and increase opportunities for people to have access to improving their quality of life. Quality education is a human right and should receive priority in the allocation of national resources because it is the prerequisite for rapid economic development (Alam, 2008, Gylfayson, 2000, p.851). However many people do not have these opportunities to access education due to remoteness, lack of government support or ignorance or financial capabilities to pay for attaining education. For many communities (see chapter two), large-scale development projects such as mining provides opportunities to access better health services and education. Whilst direct benefits can be enjoyed today, what inspires me is the challenge to see whether key stakeholders have seriously prioritized educational developments. Despite the argument that many landowners use most of the mining benefits on domestic consumption rather than long-term investment and careful use, the long-term investment in education by landowners was a huge challenge. At the national level, the provision of education has been an ongoing dilemma for the government of PNG. What actually determines a nation's commitment to education? Do we have institutional establishments, systems and policies in place to advance this cause in a sustainable way for mining communities? This question essentially reflects on PNG's vision for national educational developments:

The vision for education in Papua New Guinea at all times is the Integral Human Development of our young people so that they become literate, skilled, healthy and self-reliant citizens who can contribute to the peace and prosperity of the nation (Michael Laimo, 2005, Minister for Education).

1.5. Research Focus and Aim

The aim of the research is to identify the key stakeholders within the Porgera mine communities and assess their attitudes, commitments and level of support provided towards developing, maintaining and sustaining the education sector within landowner communities. In particular the research seeks to assess the local communities' own perception of education and their participation towards enhancing education using mine benefits that have flowed from the Porgera gold mine.

1.6. Key Research Questions

- What types of support systems/mechanism/educational inputs are in place to support educational institutions within Porgera?
- What have been the stakeholders' commitment, participation and working relationships in enhancing the educational sector?
- What are the long-term educational policies and plans in place to further education for landowner children post-mining?
- What has been the educational development outcomes like within the last 20 years for the local people?

1.6.1. Research Setting

The Porgera mine is jointly owned by joint venture partners Barrick Gold Corporation (95%) and Mineral Resources Enga (MRE) (5%). MRE is owned by the Enga Provincial Government and the Porgera Special Mining Lease (SML) landowners through an equal partnership. The mine is operated and managed by Barrick (Niugini) limited on behalf of PJV partners. The mine is located 130 km North-west of Mt Hagen and about 600 km North West of Port Moresby. It is located in one of the most remote corner of the Enga Province (Refer to appendix I & II for maps of Porgera and PNG). Production commenced in 1990 and production to date (2008) was well over 15 million ounces of gold. It has more than 2500 employees and generates substantial economic benefits for the Porgera District, Enga Province and PNG. Porgera's gold production accounted for well over 12% of PNGs total exports over the life of the mine (Barrick, nd: 04).

This thesis specifically focuses on landowner communities within the Porgera Gold Mine. A participant in this research includes stakeholders directly responsible for the enhancement of the education sector within the vicinity of the Porgera mine. The main participants included Porgera Development Authority (PDA), Porgera Joint Venture (PJV), Head masters and Principals of elementary, community, primary, and high school. It also includes vocational school, College of Distance Education (CODE), Adult Education and Department of Distance and Open Learning (DODL), parents and the community, School Board, Porgera District education officer

(Inspector) and district administration, including the principal of Porgera International School, Porgera Landowners Association (PLA) and the Porgera District Women's Association (PDWA).

1.7. Significance of the Research

A huge literature on different perspectives on education for sustainable development and sustainable development education are widely available. Within the mining industry the concept of sustainable development itself is controversial. Studies prior to 1990 and since to some extent explored Porgeran's education levels and their attitudes towards education. Studies by (Pacific Agribusiness, 1987, Mascord, 1998, Burton, 1991, Banks, 1993, 1999, 2006, Filer, 2006, Imbun, 2007, Jackson 1991, and Bonnell, 1997, 1999) all revealed the socio-economic transformations happening within the Porgera Valley as a direct impact of the gold mine. Particularly, Bonnell and Bank's socio-economic impact study (1997) covered the period since 1989, detailed the changes and problems associated with the mine communities. This can serve as a baseline for the current education sector within Porgera (Banks & Bonnell; 1997, p.1). Since then, there has been a lack of consistent, systematic and specific review of the education sector because the social monitoring programmes were one off projects, rather than an integrated programme (Banks & Bonnell, 1997).

Therefore, this study is important in three main ways: Firstly, it looks at the educational sector developments and assesses the efforts already committed since 1990 to examine the progress of education in terms of its infrastructure, achievements and educational outcomes. Secondly, the study seeks to assist in lifting stakeholder efforts and motivation to improve the education sector developments before the mine closes, while there is still time, money and expertise available by improving systems, procedures, policies and plans. Thirdly, findings from the research could be used in other mines to develop the education sector for the local communities in terms of sustaining their livelihoods. Finally, the study can be used as a guide to push companies and the government to invest more in education than any other development programmes for the benefit of the indigenous communities affected by the mine operations.

1.8. Limitations of the Research

The research did not intend to investigate and disprove the substantial amount of money invested in education and as such is not an enquiry into how landowner funds are being used for the education sector. Rather the extent to which physical infrastructures, systems and policies in which the education sector is been driven by the stakeholders is the focus of this research. The study also does not intend to nullify or argue against the mining company for not doing enough but rather to see the level of networking, relationship and participation in enhancing the education sector. In doing some limitations were encountered that hindered the progress of the field research. Firstly, the cost of transportation within the country was expensive and unreliable. Also transportation and movement within the mine site and timely visits to schools for interviews were also hindered by a lack of reliable transport as the schools were sparsely located.

Secondly, gaining access to important local leaders proved to be very difficult although three to four appointments were made to meet each of them. They were either too busy or away for other businesses. This was a very most common limitation of this research. Lastly, the research was conducted at a time when royalty payments were being made. This affected the researcher's appointments and also movements to communities as everyone converged at the Porgera station to collect cheques and not much time was available for this research for many people. Finally cultural barriers were also a limitation as not much time was spent in talking to people as it raised expectations and signs of sensitization were obvious amongst the local people. Also the amount of time for fieldwork was short.

1.9. Chapter Outlines:

The following section gives an over view of the structure of the thesis. Given the interest of the research and the multifaceted nature of the topic, two chapters have been allocated specifically for literature reviews. The first chapter of the literature review (Chapter Two) looks at the impact of mining developments in PNG and the second chapter (Chapter Three) looks at the significance of educational developments for communities affected by mining. The following chapters are outlined below.

Chapter Two: Mining Developments: This chapter explores the literature on mining developments and their impacts on the local communities where such large scale projects are located. In doing so the chapter specifically discusses the costs and benefits of mining and its effects on indigenous local people. The chapter further explores some of the benefits that are derived from mining discussing its contribution to both the national and local economies. Then a brief background into the Porgera Gold Mine, the focus of this study is presented. Finally, the concept of sustainable development is discussed within the mining context noting how it relates to maintaining local sustenance and livelihood in view of post mining developments.

Chapter Three: Education and Development: Building up from chapter two, this chapter explores what education is, its significance to development from a global perspective and its transformational effects on marginalized communities and people. The chapter then briefly looks at the background of education in PNG and the Porgera district followed by a discussion of education as a key development benefit for landowners that should be enhanced by mine developers. Three main aspects of an effective education system covered include educational inputs (resources), participation (stakeholders) and outcomes (results).

Chapter Four: Research Design: This chapter presents the research methods used in this research, identifying the research participants, research site, showing the data collection methods and data analysis procedures. The chapter further looks at the trustworthiness of the research findings followed by a discussion of my field work motivation and experience. Important ethical considerations were explored in the later sections of this chapter linking it with the literature reviews and data analysis.

Chapter Five: Data Analysis: This chapter presents the findings of the field research. Using various themes, it contains the key ideas that came out of the field research in the form of direct quotations from research participants and also secondary data sources obtained during the field research. The main issues focused on includes teacher's perspective on the level of educational inputs, participation levels, state of educational infrastructures and the extent of educational developments since the mine began operations.

Chapter Six: Discussion of Results: This chapter discusses the findings of the field research in the context of the literature discussed on mining and education (Chapter 2 and 3). It provides a discussion of the findings so as to answer the research key questions of this thesis.

Chapter Seven: Conclusions and Recommendations: This chapter contains a summary of the thesis that highlights the key ideas from each chapter but particularly presents the main findings from the research. Gaps identified are then recommended for further research in the future in this subject area. The chapter then concludes with a call for actions for people directly involved with the Porgera gold mine's community development initiatives.

CHAPTER TWO : MINING AND DEVELOPMENT

2.1. Introduction:

Large-scale resource developments contribute significantly to local and national development. However, substantial costs and benefits are involved to varying degrees affecting the livelihoods of surrounding communities. Thus, this chapter examines mining developments discussing their costs and benefits for the local communities in which they operate. Firstly, the chapter presents literature on mining development and how that has contributed to developed countries' economies and also outside of PNG. Secondly a discussion on mining in PNG and its costs, benefits and contributions to indigenous community development is made. The third section specifically provides a discussion on the development of the Porgera gold mine, the focus of this thesis. Hence, the section compares the benefits available to Porgerans' to other mines in PNG. The fourth section looks at literature on sustainable development (SD) within the context of mining introducing the emphasis on education which will be covered in chapter three as one of the main sustainable benefits for mining communities.

2.2. Mining and Development

Throughout history, many countries have used their mineral wealth to become what they are today. Many developing countries took on this strategy after WWII, turning to natural resource extraction as an alternate route to economic growth and development, apart from primary industries like agriculture. Many countries in the Asia Pacific region, Africa and South America are home to some of the world's biggest mining projects. For PNG, the real move toward mining came after gaining independence in 1975 although it started earlier than that. Elsewhere in the developed world—for example, in Australia and the United States mining has been a driving force behind economic growth and industrialization (Whitmore, 2006, p.311). In recent years, Melanesian countries appear to be following the same trend, with natural

resource extraction (gold, copper, oil and timber) increasingly becoming the focus of development policies and plans (Banks, 2009, p.1). This has sparked local and national development by providing the necessary capital, employment and expertise, while generating revenues through taxes and royalties, as well as, transferring capital and technology for much needed and immensely improved infrastructure (Banks, 2009, p.1). Mining developments are the means by which a wealth of mineral deposits are explored, developed and ultimately translated into public goods and services such as schools, roads, bridges and ports (Togolo, 2006, p.277). Simply put, mining presents an opportunity for development. Many countries through history that saw these opportunities successfully converted their mineral wealth into national wealth, which in turn provided the economic means to address development needs and improve the social wellbeing of their people (Mohr-Swart et al., 2008, p.166; Togolo, 1999 as cited in Togolo, 2006). It is quite clear that mining can contribute to the enhancement of human capital in the form of new skills acquisition; this in turn facilitates economic development in other sectors of the economy (Togolo, 2006, p.277). On a larger scale, mining directly contributes to the national economy through foreign investment, income taxes, employment provision and benefits, taxation and royalties, as well as producing greater profits for multi-national corporations (Banks, 2009, Filer, 2006, Connell, 1997). Whilst mining development ultimately brings massive economic incentives and social change to the local communities while boosting the government coffers, these gains come at a cost which is often irreversible (Sillitoe, 2000, p. 125).

The positive benefits and negative impacts of mine developments highlighted in the literature encompass social, economic, political, cultural and environmental factors (Banks, 1993, 1996, 2001, 2006, Speed and Rogers, 1999, Filer, 2000, McLeod, 2000, Finlayson, 2002, Filer & Macintyre, 2006, Imbun, 2006, Whitmore, 2006 and Golub, 2007). Mining developments on one hand bring positive changes and progress in areas where local people lack skills and knowledge due to the undeveloped, unexposed and relatively remote location of their areas (Kirch, 2007, p.306; see also Banks, 2009; Filer, 2006; and Lagisa & Scheyvens, 1999). On the other hand as far as development costs are concerned, devastating negative environmental and anti-social impacts are synonymous with mining and therefore cannot be disassociated from genuine mainstream development benefits. Despite the perceived benefits flowing from the mining industry, the costs of mining development are often financially draining,

environmentally destructive, and culturally and socially disruptive (Banks,1993; Lagisa & Scheyvens, 1999, p.125; Macleod, 2000, p.115; Mohr-Swart, Coetsee & Blignaut, 2008, p.166). For instance, the environmental impact to the Fly River from the Ok Tedi mine in the Western Province of PNG, along with the Jaba River that has been polluted by the Panguna mine (Connell, 1997), stand as living testimonials to the kind of environmental disaster and total environmental disregard that mining can bring upon the environment, drastically affecting the livelihoods of the local people.

Another often-held negative view maintained is that most of the profits from the mines are repatriated offshore, leaving a negligible amount virtually less for the host country, and in particular, the local communities. Banks (1993, p.313) expounded on this notion, showing how multi-national entities exploit and drain investable surpluses and resources out of developing countries to fuel industrial expansion in the West. According to existing empirical evidence, major profits from large-scale mining projects are often repatriated offshore, leaving nothing but big holes as evidence of their presence. Such exploitations can be seen in the cases of Latin America and Africa (Cronje & Chenga, 2009). Subsequently, this same trend is continuing within the Asia Pacific region, especially in Melanesia. For instance, the sheer speed at which many large scale mining projects simultaneously occurring within the same time period within PNG has been alarming. These practices are common in other developing countries where resource extraction has occurred or is taking place. For instance, one perspective on South African mining asserts that ‘corporate profiteering’ often takes precedence accompanied by a more or less negligent attitude toward mining communities’ development needs (Cronje & Chenga, 2009, p.413). This approach has sparked ongoing debate within academia, with increasing participation from civil society and non-governmental organizations (NGOs) who seek redress for affected indigenous communities. The presumption is that local people need to be adequately compensated for losses incurred because of Multinational Corporation’s action before these companies leave the mine areas. In doing so the need to satisfy the aspirations of local mining communities has been brought to light with the support from NGOs and the companies themselves in recent times which were previously an enormous neglected challenge within the mining sector (Speed & Rogers, 1999).

A major challenge is for these mines to contribute to human welfare and wellbeing (Mohr-Swart et al, 2008, p.167). This is not to suggest that multinational corporations do not take on the responsibility for doing just that; in fact, there is substantial evidence demonstrating mining companies' commitment toward providing and improving much needed developmental services and opportunities for the mining communities. However, there are ongoing social impact debates which focus more on the unequal distribution of mine benefits and wasteful consumption by mine-affected communities themselves (Filer & Macintyre, 2006, p.218). This in part is due to gaps between policy and practice including the current undertaking of social responsibilities as opposed to genuine SD, which often does not reach communities (Cronje & Chenga, 2009, p. 413). Whilst much of the mining industry fully supports SD by arguing for a social equity, environmental protection, economic development and the development of effective governance structures, enabling mining communities to appreciate these benefits requires the efforts of all major stakeholders, including the government, landowners and NGOs (Mohr-Swart et al., 2008, p.168). Despite the heavy emphasis on profits, concern for the environment and the wellbeing of communities affected by mining has often been considered increasingly important in recent years. This is in line with SD thinking (as discussed later in this chapter) and ensures long-term sustainability, not only for the industry but also for the local communities affected by large-scale mining operations (Mohr-Swart et al., 2008, p.168). Banks (2009) strongly asserted that well-supported arguments on the detriments of mining developments notwithstanding, natural resource extractions are still the main focus of development policies and plans in the Asia Pacific region, particularly in Melanesia where Papua New Guinea is the epicenter of mining.

2.3. Mining in Papua New Guinea

There is a huge array of literature spanning the Melanesian mining industry particularly Papua New Guinea (PNG) by industry experts (Banks, Bonnell, Burton, Filer, Imbun, Jackson, Kirch, Macintyre, Sillitoe, Connell and others) who have covered a wide range of issues within the mining industry. During the process key legitimate questions were raised by these authors some of which still beg for answers, including, "What are the prospects of the mining and petroleum sectors after serving

as significant contributors to the economy for thirty years?” (Baxter, 2001, p. 46); “Is there any form of development whereby Papua New Guineans could escape the clutches of resource dependency syndrome?” (Filer, 1997, 2006); “How can the extraction of non-renewable resources contribute to sustainable development? Will the development initiatives in the mine-affected areas be sustained? What will be the social and economic impact of mine closure on the people living in the mine-affected areas?” (Finlayson, 2002, p. 2); and “how can the benefits be utilized to advance the interests of fairness and sustainability?” (Banks, 2003, p.232). These questions form the basis for understanding the impact of mining development on local communities’ livelihoods within PNG.

Large-scale resource developments have been the drivers and major source of growth and funding for the formal economy in PNG during the period leading up to independence in 1975 and onwards (Banks, 2001; Connell, 1997; Filer, 2006). This portrays the PNG economy as ‘resource dependent’ (Banks, 1993). Whilst the history of mining in PNG spans a period of more than a century, in the years after independence (1975), the country has been impacted by a number of large scale mining operations, transforming the industry both good and bad (Banks, 1993, 2001, 2003, 2008, 2009; Togolo, 2006, Connell, 1997). The PNG mining industry is one of the largest in the Asia Pacific with world-class mines such as Ok Tedi, Lihir, Misima (now ceased), Tolokuma, Hidden Valley, Bougainville, Porgera, Ramu Nickel and Highlands Kainantu (Banks, 2001, p.14). Other prospects, such as Frieda and Simberi mines, are presently undergoing exploration. PNG’s mining industry continues to flourish because the government has been giving specific attention to its development while neglecting other development sectors such as agriculture (Connell, 1997, Banks, 2001). This is because PNG government saw the importance of the mining industry and as such has increasingly placed more emphasis on its development. Consequently, the mining industry earns greater foreign exchange, creates better investment and fosters economic growth more than other industrial sectors (Lagisa & Scheyvens, 1999, p.125).

Since 1973 when PNG first had its large-scale mining projects, its interest was revolved around collecting revenues to use to achieve its desired development objectives (Jackson, 1991 as cited in Lagisa & Scheyvens, 1999, p. 126). Following that, the industry has continued to play a dominant role in the nation’s economic

development. After gaining independence in 1975, PNG rapidly turned into a mining resource frontier becoming an integral part of the developmental process and gaining currency as the “stimulus for local and national developments” (Banks & Ballard, 2003, Paull, et al, 2006, p.34). The gains of the industry were made however, amidst environmental and social backlashes. Obviously, PNGs mining industry has been a cornerstone of its formal economy in terms of production, exports, employment, as well as a powerhouse for technical training (Anderson & Moramoro, 2002; Banks, 2008). Furthermore, its continuous capacity to influence the level of economic activity, including funding government services, furthering economic development and enhancing people’s prosperity were noted by Finlayson (2002, p.2). For instance, the magnitude of financial contributions to the State from Ok Tedi, Misima, Porgera and Lihir mines totaled around K²6.4 billion (\$NZ 3.3 billion) in direct benefits to the government between 1982 and 2001 (when expressed in real terms) (Finlayson, 2002). These funds were a significant boost to the economy of a small nation.

Mining benefits are not only a gain for the national government, but for the host Provincial Government³ (PGs) as well; landowners⁴ also receive substantial benefits from mining funding. As reported in a major benefits stream analysis conducted by Finlayson (2002) for the government of PNG (along with work by Banks, 2001)⁵, more than K2.0 billion (\$NZ1 billion) has been provided to host provinces for development as a direct benefit from the mines. In addition, despite the closure of the Bougainville mine, the mineral sector still accounted for about 50 percent of the country’s exports and 20 percent of its Gross Domestic Product (GDP) (Filer & Imbun, 2009, p.76; Finlayson, 2002). These figures demonstrate the substantial benefit provided by the mining industry signifying its contributions to the local and national economies and developments. However, arguments regarding the benefits to multinational corporations have been previously highlighted in this paper. According to Finlayson (2002), landowners receive payments from the government in the form of royalties, wages, and compensation on a regular basis in mine affected areas. This includes host governments who receive revenues, special support grants, dividends shared between the Local Level Governments (LLGs) and PGs, whilst the developers

² ‘K’ Denotes Kina which is the official currency of the PNG

³ Provincial Governments – Papua New Guinea has about 21 provinces. Each province is made up of districts which are in turn made of local level government councils. Porgera District has two LLGs (Porgera and Paiella).

⁴ Landowners – This term denotes people who have traditional rights to land and resources.

⁵ For more information on the work of Banks and Finlayson, read the baseline study and benefits stream analysis reports written by each author, respectively, as they give a clear overview of the mining industry in PNG.

also contribute up to 10 percent through donations, community support, training, educational assistance and tax credit schemes (TCS) (Finlayson, 2002, p. iii). These substantial financial benefits demonstrate the effect of funding from the mining industry towards national development. In addition, for the local communities, these much needed payments have proved crucial in helping them advance towards modernity through socio-economic development initiatives such as business development and improved access to basic health facilities and educational opportunities (Banks, 2003; Filer & Macintyre, 2006; Finlayson, 2002; Togolo, 2006).

However, the controversial nature of the mining sector itself presents a key challenge. It appears that the substantial financial figures formulated and reported on paper do not necessarily get translated into goods and services benefiting the local people. To realize the opportunities presented by mining, insofar as economic growth and human development is concerned, these benefits must be accompanied and protected by institutional integrity and governance provisions to safeguard the vulnerable and general interests of the weaker members of the community, such as children, women and widows (Togolo, 2006, p.280). Such standards are essential and must be accepted, supported and protected by both the community and the leadership at all levels. Non-existence of such measures could lead to long-term instability for local communities (Samana, 1988, p.7). Thus any discussion on mining's contribution to national developments, should also consider the impact mining has on the local indigenous communities that surround the mine projects and the benefits they receive.

2.4. Mining Benefits and Community Development

'Indigenous' and 'landowner' are synonymous terms in this thesis when it comes to resource development areas in PNG. There is a prolific literature that clearly delineates both the positive and the adverse effects of mine development upon the livelihoods of indigenous communities. In so far as mining benefits apply, there are a range of benefits at different levels for various stakeholders, including formal and informal, contractual and non-contractual, short-term and long-term. The term 'landowner benefits' are common within resource development circles where landowners exist. Along with the traditional definition of benefits, one of the most recent definitions of 'benefits' has been coined by Finlayson, who described it as,

Direct monetary payments made to the National Government, and to landowners; which includes the value of goods and services provided in the mine-affected areas as a direct result of mining and the value of wages, superannuation and training for national staff (2002, p.3)

This definition however, confines the relevance of economic significance of benefits to the national and local economies, but does not include any advantages to other key stakeholders such as mining companies, foreign employees and Foreign Service providers engaged in mining developments. The definition only focused on local peoples benefits which are the focus of this study. Rigorous negotiations at Development Forums⁶ commonly determine the type of benefits landowners can derive from mine developments (both monetary and non-monetary). The rationale for initiating Development Forums was for communities to come to an agreement as to allow developers to access land in exchange for a suite of benefits which typically involve infrastructure and community facilities, jobs, business contracts, compensation, agricultural projects, education and training, health, landowner equity⁷ in the mine development and royalty shares are legally recognized instruments (Anderson & Moramoro, 2002; Banks, 1993, 2001, 2006, 2008; Connell, 1997; Filer, 2006; Finlayson, 2002; Imbun, 2006; Togolo, 2006).

With increasing inflows of mining benefits, commentators perceive that mining improves local people's livelihood in mining communities. However, while the mining benefits have the potential to improve communities, in most cases they are not the blessing they might appear to be, but rather can often be seen as a curse (Banks, 2005, p.185). This happens when mining politics take root at the local levels, culminating in uneven development effects, unfairness and disadvantage to local people on their own land (Filer, 2006, p.309; Veiga, Scoble & McAllister, 2001, p.191, Whitmore, 2006, p.309). Another factor that enables mining companies and the government to be indifferent towards local communities is due to the remote geographies of their locations (Banks, 2003; Paull et al., 2006, p. 34). In spite of

⁶ Such forums were established in PNG as a means for preparing a Memorandum of Agreement (MOA) for each large-scale mining project. A Development Forum usually consists of government, landowners and the developer. The MOA specifies the allocation of benefits and the roles and responsibilities of each stakeholder.

⁷ Refers to share in the ownership and hence profits (The Porgera gold mine was the first in Papua New Guinea in which the local community held equity in the mining operation. Equity in the mine was negotiated as one of the key features of the original agreement between the Porgera landowners and the national Government at the conclusion of the development forum held in 1988–89 (Banks, 2003, p.226).

substantial resource rents from mining, the fiscal condition and capacity of the government has been weak and it cannot provide adequate services for its citizens due to the workings of a partial and unproductive public service machinery (Banks, 2000; Dinnen, 2001; Golub, 2006, 2007). Within such an environment, the push for development tends to embody lower environmental standards which make the local communities around these operations the biggest losers (dubbed as ‘unseen casualties’) in the broader national development discourse (Paull et al., 2006, p.34). Therefore, care needs to be taken that indigenous people are *convinced*, rather than *coerced*, to accept a developer’s presence (Golub, 2007, p.39). In view of the significant environmental effects, many communities see a company’s “goodwill gestures” as compensation for environmental losses they have incurred.

However, the common perception is that these are only tiny gestures compared to the huge profits made by the companies themselves. Indeed, these tokenistic actions are viewed by local people as merely the companies’ efforts to fulfill their corporate social responsibilities⁸ (CSRs) (Imbun, 2006). What matters most is how the benefits provided ultimately translate into tangible sustainable development outcomes. The resource-driven economic growth that PNG has been experiencing has not really succeeded in effecting broad-based improvements in health and education services across the country (Banks, 2003, p. 224). This continuous failure of the government in bringing about tangible development from the returns of mine revenues exacerbates concerns over how these revenues are being managed. There are no concrete measurements for establishing the impact of mine benefits in arriving at a desired degree of satisfaction. Banks (2002a, p.1), argued that there has been no systematic evaluation of the benefits or costs to the various stakeholders, including landowners. Whilst reliable local data for example from a census are often limited or absent, the general focus in recent years has been on the direct impact of mines (in both negative and positive terms) without considering the context of broader changes in the social and environmental landscapes (Banks, et al , 2005, p.1). It has often been difficult to gain an overview of the impact and the benefits mining exerts on stakeholders. The lack of proper evaluation and lack of appropriate data and monitoring leads to an uninformed and murky assessment of existing problems. Concrete information would

⁸ Corporate social responsibility (CSR) promotes a vision of business accountability to a wide range of stakeholders, besides shareholders and investors. Key areas of concern are environmental protection and the wellbeing of employees, the community and civil society in general, both now and in the future (<http://www.iisd.org/business/issues/sr.aspx>)

enable the determination of whether or not landowners have made the most of mining benefits to improve their livelihoods. For instance, merely experiencing a greater cash inflow does not necessarily infer an improvement in livelihood; rather, it is the ways in which the cash influx is used that determines the extent of improvements in the standard of living. Typically, mines are located where service provision and state presence has always been minimal or nonexistent (Banks, 2008, p.24, Jackson, 1991). One such large-scale mining project that has brought a substantial inflow of benefits to major stakeholders is the Porgera gold mine in the highlands of PNG. The benefits received, although substantial, could be viewed either as a road to disparity and desolation or as a way forward to prosperity and sustainable livelihoods and in turn toward greater local and national development.

2.5. The Porgera Gold Mine

The Porgera gold mine is located in Enga Province, 250km West of Mt Hagen. A Special Mining Lease⁹ (SML) was issued by the government of PNG in 1989 and production began in 1990 (Banks, 2001, p.15). In 1992, the Porgera mine became the third largest gold producer in the world, and a few years later it still held fifth place in the world (Banks, 2001, Imbun, 2007). These rankings not only demonstrate the mine's mineral content and profit potential but also give an indication of the extent of benefits it has provided for all its stakeholders. The Porgera mine was described as one of the most spectacular successes in the mining industry from a technical and financial perspective (Banks, 1996, p.223; Filer, 1999, p.3). The mine has produced considerable wealth for the country and the developers, and has brought about many profound changes for the local people since production began in 1990 (Burton, 2009, p.6). This year, 2010, marks its twentieth year of operation which also means twenty years of a significant contribution to local and national development in the country.

Although the Porgera mine initially started production in 1990, exploration dated back to 1939 (Banks, 2009, p.15). This means people in the valley had been exposed to cash income opportunities through mining for many decades. Prior to development of

⁹ These leases cover an area allocated to an entity for the extraction and/or processing of minerals, or ancillary activities, for a period not exceeding 40 years. An SML requires a Mining Development Contract between the State and the developer and a Development Forum involving local landowners and the host provincial government (Finlayson, 2002).

the mine in 1989, the Porgera area had only meagre infrastructural services—a typical feature of other peripheral districts in the province (Imbun, 2007). However, since that time, the presence of the gold mine has brought significant economic and infrastructural development to Porgera, as well as to the rest of Enga Province (Imbun, 2007). Studies conducted over the years revealed some of the major changes which have shaped and altered the lives of the Ipili¹⁰ people since the mine began its operations (see works by Banks; Bonnell; Burton; Filer; and Imbun). Notable among those changes is the shift from a subsistence economy to a cash economy, increases in law and order problems, increase in polygamy and an increase in alcohol consumption, among many others. These changes have greatly affected the way the Ipili people now live compared to the past as a result of the Porgera mine development.

2.5.1. Porgera Gold Mine: Why It Is Different.

Why would Porgera landowners be different from other resource project landowners within the country? There are a few features which sets them apart. Firstly, the Porgerans were exposed to cash income from gold prior to independence and the commencement of the Porgera mine. Secondly, although remote, isolated and relatively poor, Porgera hosts one of the richest gold mines in the world such that this juxtaposition poses significant potential for development (Banks, 1993; Lagisa & Scheyvens, 2006). Thirdly, Porgerans were among the first group of resource owners to participate and negotiate landowner benefits and agreements of such an advanced level and extent. Their action helped pave the way for other resource owners to make similar arrangements. Fourthly, Porgerans were also among the first to hold equity in a mine apart from royalties and other levies (Banks, 1993; Burton, 2008; Finlayson, 2002; Imbun & Filer, 1999, Togolo, 2006). More significantly, the government and PJV continue to be the main beneficiaries, although a substantial amount of financial and non-financial benefits are said to have been made available for landowners. In real terms, the landowners, the Enga Provincial Government¹¹ (EPG), and the government of PNG have been receiving a substantial amount of money through various means such as grants and levies. For instance, between 1990 and 2001, it is

¹⁰ The original people of Porgera in which the Porgera mine sits and operates.

¹¹ Enga Provincial Government (EPG) is the provincial arm of the government under which Porgera district lies. It is different from other provinces because it has only one major language dialect.

estimated that national employees (60% are Porgerans) have received wage payments totaling K344 million (\$NZ178.90 million), training and education assistance totaling K16 million (\$NZ8.3 million) and contributions to retirement funds of K28 million (\$NZ14.60 million) (Finlayson, 2002, p.35). Furthermore, wage payments to Porgerans were estimated to have totaled K167 million (\$NZ86.80 million) between 1989 and 2001 in real terms. A further K10 million (\$NZ5.20 million) was spent on training Porgeran staff, and K14 million (\$NZ7.30 million) had been paid to Nasfund contributions (Finlayson, 2002, p.36). According to Finlayson (2002, p.36) Porgera Landowners received K36 million (\$NZ18.70 million) in royalties, K62 million (\$NZ32.20 million) in compensation, and K26 million (\$NZ13.50 million) in equity related payments and dividends over the period 1989-2001. Furthermore, in 2001, approximately K33 million (\$NZ17.20 million) in royalties, compensation, dividends and wages entered the local economy. According to PNG standards, these are massive amounts of money that if appropriately used, could transform the whole Porgera valley. In addition, between 1989 and 2004, PJV spent more than K61 million (\$NZ31.70 million) on employee education and K10 million (\$NZ5.20 million) on scholarships for more than 500 students (Togolo, 2006, p.276). Furthermore, between 1987 and 1996, compensation payments from the company amounted to K30, 927,886 (\$NZ16.90 million) (Filer et al., 2000, p.95). The equity in the mine held by the landowners also received another K12, 423,930 (\$NZ6.20 million) in dividends between 1989 and 1992, above royalties received. These monies are in addition to a multitude of new services provided to them by the government which included a hospital, new roads, a trust fund for children's school fees, and a variety of other benefits (Banks, 1999; Bonnell, 1999; Filer, 1999, p.108).

Furthermore, the Porgerans are not only the leasers of the SML land on which Barrick operates the Porgera gold mine; they own high-rise building in Port Moresby where Barrick has situated its corporate headquarters (Golub, 2006, p.268). In addition, PJV's Tax Credit Schemes (TCS) have helped establish infrastructure projects as agreed between the government and the developers (Imbun, 2007). Other unprecedented levels of economic benefits that flowed to the community include relocation housing for over 500 families, about K60 million (\$31.20 million) in business contracts, and K30 million (\$NZ16.07 million) in compensation for land clearance and substantial wage earnings as stated earlier (Banks, 1997; Burton, 2008). The substantial benefits

accrued by Porgera landowners can be attributed to the fact that they participated in the mine's Development Forum from the very start of the project which paved the way for their greater involvement (Burton, 2008, p.103). However, most of the patterns of secondary distribution and investment of the monetary benefits from mining remain unknown (Burton, 2008, p.104). Uncovering these facts in order to protect the interests of the more vulnerable members¹² of society will require a systematic research effort (Burton, 2008; Filer & Banks, 1999, Imbun, 2006).

In order to protect those interests, mining benefits that are dedicated toward economic growth and human development need to be accompanied and protected by institutional integrity and governance provisions (Togolo, 2006, p.280). These requirements are important since mineral royalties are granted directly to provincial and local institutions which do not normally have the capacity to effectively deliver goods and services to the people. The above monetary picture detailed gave a picture of the substantial amount of monetary and non-monetary benefits available for Porgera landowners that makes them not only different from other mines but also demonstrates the assertive way they brought themselves to the negotiation table to secure these benefits. How these monies have actually benefited them and what evidence there is to see in terms of their living standards and the level of services provided remains to be revealed by further research. Landowners' standards of living will reflect whether benefits derived from mining have been privileges to improve their livelihoods or have contributed too many of the predicaments that they currently face within their communities.

2.5.2. Mining Benefits Privileges or Predicaments?

Most mining projects are often located in isolated and remote places where mining is typically regarded as the only form of development for these communities (Banks, 1993, 2001, 2003; Filer, 2001, 2006; Jackson, 1991; Lagisa & Scheyvens, 2006). For many of these communities, mining brings hope with promises of great wealth and development opportunities to provide the means for gaining wealth rapidly and enabling dreams of modernity (Filer & Macintyre, 2006, Finlayson, 2002). In other

¹² Vulnerable members of the community include women, children, infants, the aged and children of single mothers because it is the men who often make decisions over community resources.

words, mining is perceived as the only development opportunity for the local people of many years. Indeed formal agreements and legislation, such as the 1992 Mining Act of PNG, enables these privileges and opportunities to realize (Banks, 2001, p.25). Furthermore, well developed community plans are often required during the development process, which should accommodate the views and contributions of all stakeholders (McLeod, 2000, p.120). This plan seeks to aim towards long-term improvements and SD. Subsequently, these should according to McLeod (2000) encompass mutual respect, trust and transparency as key elements in landowner development negotiations and agreements to translate mining benefits into realities (MacLeod, 2000, p. 120). Whilst the privileges of mining look promising, viable and presentable for these local communities in terms of socioeconomic development, the hard realities of marginalization and each community's unique predicaments cannot be overlooked at every level.

The blunt detrimental effects of the mine (social, cultural, environmental and physical) are borne by the communities for years down the track, and if these have not been detected and planned for earlier, local people stand to be unfairly disadvantaged (Banks, 2001, p.25; Whitmore, 2006, p.309). One perspective asserts that most landowners are not knowledgeable and thus are simply not capable of using their benefits wisely and sustainably. This makes sense, as these individuals have had limited exposure to large sums of money in their lives.

However, this analysis can be viewed from another perspective, as noted by Patriot of PNG, a viewpoint expresses in the Post Courier:

To them, the proceeds and benefits are just a load of illusion of a better lifestyle. Although mining comes with millions of kina, yet very little developmental manifestation can be seen on the ground. People are still living in thatched roofs, no piped water, schools still lack proper facilities, and hospitals have no medicine. Many communities live the same lives as their domesticated animals. (Patriot of PNG, 2009 Post Courier).

The above sentiments explain the hush reality of many landowner communities in most of the mining areas within PNG. There is still not much difference as yet which is still quite a challenge. Another major challenge for mining communities is their inability to manage and utilize mining related benefits effectively to improve their livelihoods (Finlayson, 2002). The problem is not according to one commentator

(Patriot of PNG, 2 009) one of “have” and “have not”, but of competently managing today’s windfall from the mineral boom to ensure the sustainability of livelihoods into the future. In reality, large cash handouts have lured landowners into ‘binge spending’ which increases their conspicuous consumption patterns, alcoholism and increase in polygamy, investments in “traditional exchanges” especially bride prices rather than the acquisition of consumer goods and re-investments (Banks, 1993; Jackson, 1991, 2000; McLeod, 2000). Another example is highlighted by Banks (2006, p.80) where he described how local business developments in Porgera have failed, even though they were key landowner demands during negotiations. Two reasons why these businesses failed were the cash shocks that occurred, and the illusion that the mine would continue to dish out benefits. Other factors further revealed by Banks (2006) include the ways that Melanesian cultures articulate with modern business practices such as involvement of Wantoks¹³ or ideas of big men mentality running down the businesses. Consequently, local businessmen fail to isolate themselves from business operations and often use the money from business to acquire more wives (Banks, 1994, 2004).

Apart from the self-inflicted problems landowners endure, mining companies have been noted of gradually become ‘stubborn’ toward landowners over time, trampling on their rights by conniving with the government (Filer & Macintyre, 2006, Hyndman, 1991). The government’s inaction in protecting landowners’ interests from the mining companies reveals the corruption and self-centeredness of government authorities who do not extend much needed security but instead collaborate with the mining companies (Crispin, 2003; Hyndman, 1991). Government intervention, however, requires visionary and responsible leadership from decision-makers. Unfortunately, this has been an area of lack in PNG. According to Burton (2009, p.19), government leaders show little interest in the welfare of the people in mining-affected communities. Their participation in decisions extends only as far as the glamour of investments and the spin-offs in taxes, levies and profits as far as the State is concerned (Burton, 2009, p. 19). Banks (2008) further maintained that political aspirations (accumulating wealth to contest national elections) of people in resource rich areas is another cause of weak and corrupt government that is rendered ineffective in enacting appropriate economic policies. However, Banks (2008) argued that the State’s lack of consistent performance on their part in ensuring active

¹³ Refers to friends, relatives or someone you know very well in Tok Pisin.

involvement in the development, implementation and coordination of policies is a grave concern. This inconsistency can be largely attributed to the lack of human expertise and necessary resources in PNG (Banks, 2008). Furthermore, Imbun (2007) held that the ongoing failure of various levels of government to deliver basic goods and services has led many communities to call on mining companies out of desperation to have these needs met. Burton (1998) pointed to such government as “mal-administered” “pathologies of provincial administration”, lacking any evidence of local-level government or corporate development initiatives. Where the State’s capacity to deliver these services is limited, communities are more inclined to have less regard for government authorities, and this contributes to the burdens and predicaments of mining communities. In view of these issues, Samana (1988, p.4) attested that mines either helped locals to sustain their livelihoods or help in destroying them:

If the State depends too much on mining, it is not promoting development for the people that is, human development it is promoting ‘devil-upment’. The signs of devil-upment are very clear: destruction of the environment and the livelihood of the people, destabilization of the social units and direct rural-urban migration.

Samana further argues that mining promotes ‘mutual destruction’ rather than mutual development, and exist to benefit companies (with their high profits) at the expense of local communities (1988, p.5). It is in this regard that the concept of SD gains currency. State negligence and ignorance concerning mining communities’ sustainable livelihood strategies, or failure to be proactive in implementing replacement economic survival strategies, destines communities to die a silent death the day their mine shuts down (Cronje & Chenga, 2009, p. 413). Therefore, investment in SD projects and programmes whilst the mines are in operation is extremely important. These are not only for the benefit of the communities affected but underline the need for the mutual fulfillment of obligations and responsibilities of the various stakeholders as well. As such SD as a concept and development tool must be recognized and enhanced in mining communities development interventions.

2.6. Sustainable Development (SD) In Mining Communities

Filer and Imbun here clearly spell out the real SD issues facing PNG mining industry

If developers fail to internalize the full external costs of mineral development, then the simple equation of financial costs and benefits, as registered in corporate and government accounts, will fail to show the extent to which mineral development also counts as sustainable development. (Filer & Imbun, 2009, p. 76)

However, it is appropriate to revisit the concept of SD again. According to Redclift, (2008, p.279) ‘SD’ has served as a concept, a policy prescription and a moral imperative. Although there are multiple definitions of SD, the definition given by the Brundtland Commission (1987) is still common and valid, where SD refers to “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Whilst there are criticisms of this definition, it provides a basis for development advocates to consider the future within the development discourse, whilst developing and using current resources. However, insofar as the mineral sector is concerned, SD has been a contentious and controversial issue. As alluded to by the Mineral Council of Australia (2004) and described by Mohr-Swart et al. (2008, p.169), SD within the mining sector includes investments that are financially profitable, technically appropriate, environmentally sound and socially responsible for the communities in which they operate. However, SD requires a coherent policy and planning framework to achieve long-term impact. Whilst policy frameworks are vitally important, they must also be capable of being made manifest and translated into reality. However, according to Cronje and Chenga (2009, p. 413) gaps between policies, plans and practice, and between ‘social responsibilities’ and genuine SD, are too common. What should matter most is whether policy frameworks are workable in producing tangible SD outcomes or not. In addition to sustainable policy frameworks, Cronje and Chenga (2009, p. 413) further assert that power relationships, effective communication, planned priorities and identified responsibilities are all crucial. In such ways SD practices typically incorporates a range of guidelines, policies, principles and activities. These enable sound corporate governance, ethical business practices and responsible extraction of

natural resources (Mohr-Swart et al., 2008, p.171). Thus, the mining industry could contribute to sustained growth and prosperity if economic progress, responsible social developments and effective environmental management become integrated (Mohr-Swart et al., 2008, p.165). Despite reluctance by some mining companies, there is increasing involvement by the industry in community development roles, often promoting the newly acquired corporate language of 'sustainability' and 'partnerships' that has evolved during the last decade (Banks, 2008, p.24). In this regard mining companies drive development in remote communities where the perceived impact although positive is often short-lived, disregarding long-term losses (Lagisa & Scheyvens, 1999, p.129). However, mining and SD are not necessarily contradictory terms; mining developments contributions can have profound long-term SD effects within communities if policies and plans guide such developments (Mohr-Swart et al., 2008, p.168).

Within the PNG mining sector, SD remains an enormous challenge, even though it is important for both the industry and the sustainability of local livelihoods. One of the reasons that PNG has gained global prominence in regards to corporate social responsibility and environmental responsibility is the fact that it hosts three famous mines around the world for their irresponsibility: Ok Tedi, Panguna and Porgera (Filer et al 2008, p.180). These mines have caused irreversible damages in terms of local people's livelihoods which make SD a vital aspect yet challenging. Another key challenge faced is the absence of actual acknowledgement of mineral revenues in the government's expenditure budget and plans each year (Filer & Imbun, 2009). The concealment of these revenues reveals the government's devious stand on SD interests. In other words, the revenues from mining are shown but it is the application of these that are not shown. This is due to the opinion held by PNG's Department of National Planning that mining and oil industries are 'sunset industries', and as such cannot, by definition, be sustainable and therefore cannot make a contribution to SD (Filer & Imbun, 2009, p.77). The reality of mining companies participation in the longer-term prospects of governance in PNG is that, if the companies become de facto mini-states, the sustainability of any infrastructure and services provided is not guaranteed once the mine operation ends. Consequently, SD is vitally important to the very people whose lives are affected by mining operations. The local communities are the ones who will live to experience the ordeal over the years. As noted by Mark

Soipang, a Lihir landowner, “the developers are foreigners and the State is only a concept; it is us, the landowners, who represent real life and real people” (Filer, 1996a, p. 68 as cited in Ballard & Banks, 2003, p. 297). As such Banks (2003) argued that ongoing governance problems can be blamed for the failure of workable policy frameworks in PNG. Banks (2003) further contended that the PNG government has condoned systematic corruption which remains unabated, and this has trickled down to become a factor in the failure of stakeholders to comply with and fulfill obligations and commitments vital to SD within mining communities. Consequently, the most troublesome issues, from the SD perspective, are the local effects of large scale resource development projects, regardless of whether forestry or mining (Banks, 2009).

In a bid to establish an SD framework, a group of experts were brought together in 1985 to discuss how the mining sector could contribute to SD in PNG. Papua New Guineans were optimistic toward having a mineral policy framework in place which would be the envy of the other developing countries (Filer & Macintyre, 2006, p. 215). However, the policy framework did not come to mean much over the years. Rather, the development transformation driven by the mining industry has been lamented by many authors (see Banks, Bonnell, 1999, Burton, 2006 Filer, 2006 Imbun, 2007, Jackson, 1991) who cited discrepancies between policies and practice. In the past decade, PNG has been positioned to benefit from a detailed baseline study undertaken by Banks (2001) through the MMSD¹⁴ project. Coupled with this is a sustainability framework developed by Finlayson (2002), which has the potential for setting effective and meaningful SD outcomes for PNG but was never put in place. Both of these are being applied in an environment with a significant governance deficit, where there is a shortage of authority to determine who should be responsible to whom for what (Filer et al., 2008, p.180). In reviewing the recent literature, PNG looks like a country where it is hard to distinguish between environmental and social responsibility and the lack of it (Banks, 2006, Bosshard, 1996, Danielson, 2006, Filer et al, 2008, p.180). It is in this regard that it is important to focus on those types of development that are helpful in achieving SD, and on gaining an understanding of how SD will be achieved. SD and sustainable livelihoods should form the basis of

¹⁴The Mining, Minerals and Sustainable Development (MMSD) was an independent two-year project of research and consultation looking at how the mining and minerals sector could contribute to the global transition to SD. (<http://www.iied.org/sustainable-markets/key-issues/business-and-sustainable-development/mining-minerals-and-sustainable-development>)

development endeavors within the mining industries and the local communities that surround them.

2.7. Summary

The literature review in this chapter covered mining development and its contributions to national and local developments. The costs and benefits of mining in PNG and elsewhere were highlighted, with a specific focus on the Porgera gold mine. Most of the communities where mining developments occur exist in very remote and isolated locations where government services are quite limited. These local communities regard mining developments as ‘the only way’ of accessing services and a route to modernity; however, their journey down that route takes place at the cost of giving away their land. The literature suggests that mining benefits are only temporary in nature, as compared to the long-term predicaments that communities will eventually come to find themselves in. At some point, the negative impact of mining will outweigh short term gains although the literature has stressed that mining provides an opportunity for landowners and communities around the mines. It is also true that mining has become a curse for many of these communities as well, one that brings problems, social ills and other forms of disruptions as noted in this literature review. It is this dichotomy that provides the basis for suggestions on how mining benefits can be translated to maintain local livelihoods, and how mining companies can assist and relate to sustainable forms of development for communities. In pursuit of enhancing a sustainable welfare and livelihood of mining communities, the literature suggests that enhanced communication, ongoing education, cooperative decision-making and diversification are important elements in long-term community sustainability (Veiga et al, 2001, p.191). In this context and the research aims, the next chapter specifically addresses education in the light of the evolution of the SD theory. These two factors (Education and SD) lie at the core of this study, the objective of which is to assess the impact of mining on education within landowner communities, from the perspective that education itself contributes to SD and livelihood sustenance.

CHAPTER THREE : EDUCATIONAL DEVELOPMENT

3.1. Overview of the Chapter

Following the discussion on mining and development in chapter two, this chapter looks at education as the core theme of this research, situated within the context of the debates around mining and sustainable development. In doing so, it brings together Amartya Sen's concept of "development as freedom" and Paulo Freire's views on "education as freedom". However, far from experiencing development as the means to such freedom, communities in resource extraction areas often become victims of corporate profiteers and government ignorance. This chapter is structured around four dimensions (educational input, participation in education, educational outputs and education as a component of sustainable livelihoods) that align to the objective of this thesis, providing a perspective on the sustainability of education sector development. Together, these factors define a context within which the contribution of education to the sustainable development of communities around the Porgera gold mine in Papua New Guinea can be evaluated.

This chapter begins by addressing the first of these four dimensions by considering the theoretical connections between education and development, including exploration of the concept of educational investment. The second dimension involves examining the significance of education to developing communities. Here views and arguments regarding the roles of major donors in educational developments are discussed. Factors that contribute to the high quality development of educational institutions are covered as part of the third dimension, including educational input, educational participation and educational outcomes. The fourth dimension looks at education from a sustainable development perspective, especially in the context of resource development and what it could mean for local mining communities. The last section discusses the background of PNG's educational system, followed by a review of educational development within Porgera and the summary of this chapter.

3.2. Education and Development

If development is founded on a belief in modernity as something which improves people's lives, then investment in education should be the key element of the development process (Peet & Hartwick, 2009, p. 1; Psacharopoulos & Woodhall, 1985, p. v). Amartya Sen (2000, p. 3) described the development process as one that "expands the freedoms people enjoy". Whilst contrasting human freedoms with narrower views of development, Sen highlighted economic growth, including the Gross National Product (GNP), industrialization and an increase in personal income, as important means for expanding the freedom society enjoys. Furthermore, Sen affirmed that other determinants of human freedom such as social and economic arrangements (for example, health and educational facilities) and political and civil rights (for instance, the liberty to participate in society) are also equally important (Sen, 2000, p. 3). For society to progress through the development process requires the removal of major sources of 'unfreedom' such as poverty, tyranny, and neglect of public facilities, negligence and intolerance (Sen, 2000, p. 3).

Lack of substantive freedom sometimes relates directly to economic poverty, lack of public facilities, lack of organizational arrangements for health and educational facilities, and lack of effective institutions to maintain local peace and order (Sen, 2000, p. 4). In other cases, violation of freedom can be the denial of political and civil liberties by authoritarian regimes through imposed restrictions on peoples' freedom to participate in the social, economic and political life of the community (Sen, 2000, p. 4). Among other views, Coles (2006, p. 204) argues from a neoliberal perspective to limit "public or communal goods" and replace them with individual responsibilities. This would remove the obstacles to ordinary people's freedom to access health and educational services. However, freedoms should not merely be the primary ends of development; rather, they should be among its principal means (Sen, 2000, p. 10). Similarly, Robinson and Shallcross (2006, p. 239) argue that "democracy is also a key feature in decision making and implementation" that is linked to freedom. Decisions that promote social opportunities in the form of health and education facilities also facilitate economic participation (Sen, 2000, p. 11). When individuals are given adequate social opportunity, they can effectively shape their own destiny and help each other (Sen, 2000, p. 11). As such education is one of the social opportunities that

can increase people's access to freedom and democracy. The denial of access to educational opportunities is sometimes due to the subtle interplay of social attitudes and political policies that combine to erect barriers to success for the marginalized and the underclass people (Kassem, Mufti & Johnson, 2006, p. 134).

But what is education? There is not one absolute definition for education that is accepted globally. Basically, education is the art of dispensing information and facilitating learning, with a purpose positively associated with human development (Dyer, 2008, p. 436). There are different types of education involving formal, informal, traditional and indigenous education. For instance, a social approach sees education as a tool for the advancement of society, emphasizing human resource development and the emergence of the productive good citizen (Hayden, 1971, p. 173). In the development context, education encompasses everything from support for basic literacy to skills training, to tertiary and post graduate studies (Adams, 2009). However, the primary purpose of education is not just to earn a living (Livingstone, 1953, p. 454). Human beings have a body, mind and soul which combine and interact to form our personality, and each should make the most of each one. The body, soul and mind are accompanied by needs which determine the aims of education, which should prepare individuals either by general or vocational training to earn their own living. Education should give people an understanding of the universe and the human race, and should help them become fully developed human beings (Livingstone, 1953, p. 454). This world is a material world and knowledge is an essential part of education. Combined with human experience, education can be a form of intervention in the world where it gives people the freedom and ability to determine their own destinies (Freire, 1998, p. 91; Thirlwall, 2002, p. 42). Therefore, development and education should be aimed more toward expanding people's choices and freedoms than toward merely achieving economic growth (Alam, 2008; Sen, 2000).

Education which opens up the 'unfreedom' noted by Sen (2000), thus becomes a means to realizing individual achievement from an early age into adulthood (Coleman, 1975, p. 28). People cannot enjoy freedom and quality of life if they are imprisoned in marginal subsistence with no education and no skills; rather, such conditions lead to social injustice. Education can be much more than simply providing resources which are vital for the marginalized groups in a society (Kassem et al., 2006, p. 134). When social justice is at the heart of education, education can be

aligned systematically to social policy allowing people to take control of their own lives in a positive way (Kassem et al., 2006, p. 143). This also links to the idea of human development highlighted by the United Nations Development Programme (UNDP) (2002), as cited in Alam (2008). UNDP sees investment in human development through education as much more than raising national income and individual earning power. “It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accordance with their needs and interests”, wrote Alam (2008). Still, many governments turn their focus more toward other sectors, such as economic development, and tend to neglect investments in the education sector. Despite social and economic gains, the persistence of poverty and inequality continues to be one of the most problematic issues in development (Kothari & Minogue, 2002, p. 3). This dilemma makes access to educational opportunities even more difficult. Whilst human development indicators tend to highlight progress, deprivation and inequality in the distribution of benefits of growth still exist and may even be increasing (Kothari & Minogue, 2002, p. 3). Part of the key to addressing educational issues is to create a network of institutions (key stakeholders) which can be at individual or organizational levels. The interactions of these institutions attract participation, networking and reveal power relations important for growth.

Long-lasting educational transformation (in the Western educational context) often comes not from the work of educators and researchers, but from larger social movements which tend to push major political, economic and cultural institutions in specific directions (Apple, 2006, p. 110). Given this trend, it appears that education is again witnessing the growing influence of powerful social movements (Apple, 2006, p. 111). The government seems no longer the legitimate and neutral upholder of the public good rather; it is now well placed to become an active agent of natural decline, as well as an economic drain on a country’s resources (Apple, 2006, p. 115). One relevant example of this is governments that collude with resource developers. The moral, political and economic concerns involved in these dilemmas easily affect public educational institutions since for many people; schools are the governmental institutions closest to them. This is obviously the case in many parts of contemporary PNG where educational institutions are the only government institutions available to rural communities. Educational institutions then are important in this sense.

3.3. The Significance of Education

To improve the quality of life, you must look at matters like better education and health, and improved transportation systems to assist the struggling people in rural areas. We need to look at development from the point of view of people, rather than roads and bridges for an economy that does not meet the needs of our people (Samana, 1988, p. 9).

Any development including education should be viewed from the people's perspective as it is about meeting their needs as argued by Samana (1988) above. However, education has gained global currency as a development priority and thus is attracting increased commitments and participation from all sectors of society. Non-Governmental Organisations (NGO)¹⁵, churches, and donors have been calling on governments to increase their efforts and commitments through international treaties such as the Education for All (EFA)¹⁶ and Millennium Development Goals (MDG)¹⁷ strategies. The profound trickle-down effects of education on other development goals in health and gender equality are widely recognized (Alam, 2008). Prior to 1962, the World Bank didn't pay much attention to education. However, that attitude changed later in the sixties as interest in its economic value fuelled a growing demand for education (Psacharopoulos & Woodhall, 1985, p. 3). This change is currently reflected in the World Bank's development policies which now promote productive investment in human capital¹⁸. According to Psacharopoulos and Woodhall, the World Bank's shift was due not only to viewing education as a basic human right, but also to the realisation that education is an important component of social and economic development. Whilst broad-based economic growth is important, provision of basic education enables people to acquire basic skills which in turn improve

¹⁵ Refers to organizations like Care International, Oxfam and others who play an increasing role in supporting international development including education.

¹⁶ An international initiative first launched in Jomtien, Thailand, in 1990 to bring the benefits of education to "every citizen in every society." In order to realize this aim, a broad coalition of national governments, civil society groups, and development agencies such as [UNESCO](#) and the World Bank are committed to achieving this goal (see <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTEDUCATION/0,,contentMDK:20374062~menuPK:540090~pagePK:148956~piPK:216618~theSitePK:282386,00.html>).

¹⁷ These are 8 international development goals that all 192 United Nations member states and at least 23 international organizations have agreed to achieve by the year 2015 (see http://en.wikipedia.org/wiki/Millennium_Development_Goals).

¹⁸ Refer to people's innate abilities and talents plus their knowledge, skills, and experience, all of which combine to make them economically productive. Human capital can be increased by investing in health care; education and job training (see <http://www.worldbank.org/depweb/english/beyond/global/glossary.html>).

wellbeing and transform individuals and communities by improving lives (World Development Report, 2007). Education around the globe is now seen variously as a “defence of peace” (UNESCO¹⁹, 2000), a “basic human right” (United Nations (UN), 2001), an escape route from poverty (AusAID, 2001), a “key agent of national development” (Alam, 2008), a powerful tool for empowerment (Adams, 2009, p. 2), and as the most successful and widely recognized means of achieving sustainable development (NZ AID, 2009, p. 6). In addition, education is essentially viewed as crucial for driving rapid economic growth, creating a productive labour force, improving health and controlling fertility (Dyer, 2008, p. 436). As argued earlier, if people are the real wealth of nations, human development must be the principal focus of any government; thus, education plays a central role in contributing to a nation’s development and it has profound impacts. It enables empowerment, as people acquire skills, knowledge and experiences that have lasting positive effects on development (NZ AID, 2009). Furthermore, creates increased opportunities and improves people’s lives. Investment in education supports sustainable development by reducing poverty and contributes to a more secure, equitable and prosperous world (Adams, 2009; AusAID, 2002; NZ AID, 2009).

Within the Pacific region, major donor agencies believe that through education, the acquisition of skills and knowledge will support sustainable economic growth in developing countries (NZ AID, 2009; World Bank, 2002). Indeed, education and learning outcomes can be converted into goods and services, increasing institutional capacity, enabling a stronger public sector, and a more capable civil society (Adams, 2009, Usher & Edwards, 1994, p.125), furthermore strongly promotes and stimulates economic growth by increasing the efficiency of the labour force (Alam, 2008; Gannicott, 1990, p. 421), creates better conditions for good governance, improves health and enhances equality (Aghion et al., 1999 as cited in Gylfason, 2001, p. 851). However, in enhancing education, governance and commitment from stakeholders increasingly play an important role in education. The concept of governance is crucial within the education system itself, as it enhances education’s ability to influence society to improve communication, promote transparency and ultimately change the responsibilities of local stakeholders (World Bank, 2000). Taking responsibility and ownership is important in educational developments, because it increases the community’s voice and participation. Furthermore, any long-term development

¹⁹United Nations Educational, Scientific and Cultural Organization

impact stems from systematic improvements in the governance of the education sector as well as ownership of responsibilities (AusAID, 2008). The educational sector requires contributions from various stakeholders for its growth and development. But what factors actually drive a nation's commitment to education? Identifying these factors starts with examining three educational measures suggested by Gylfasons (2001, p. 858): educational input, educational outcomes and educational participation. The need to provide the best possible education requires on-going improvements to the education system, which comes at varying costs. Education brings communal benefits and needs participation and inputs from all stakeholders, sector-wide. In order for learning outcomes to actualise, it requires support from stakeholders. Community and parental support are essential through financial support (school fees) and other in-kind contributions toward meeting the cost of general education (World Bank Report, 2007).

3.4. Factors That Contribute to Educational Development

Education has been regarded as a holistic development process, and just like any other development target, requires consistency in planning, support, and resource allocation, and the capacity to operate and deliver output as a system. One way to measure the success of educational development is to look at the professionalism of various factors within the education system. According to Hayden (1971, p. 173) 'professional elements' include methods of teaching, teacher skills, the relevance of what is taught, and the tools employed to enhance and promote quality education. Whilst Gannicott and Throsby (1992, p. 223) asserted that the availability of learning materials and the quality of the educational management, leadership and curriculum reforms have the greatest bearing on an education system, others such as Gylfason (2001) and donors like UNDP and the World Bank view different factors as equally important. In keeping with themes relevant to this research, this thesis has chosen to follow Gylfason's (2001) approach which centres on three factors that can constitute effective development and growth of an education system: educational input, participation in education and educational output. How these vary with the share of national wealth dedicated to education will now be explored and discussed in detail.

3.4.1. Factor One - Educational Input

Whatever form educational inputs may take, the term could be interpreted broadly from among many potential input factors. Educational input covers a broad spectrum of ideas, including human resources (qualified and adequate Staff), educational infrastructures (classrooms, offices, storerooms, and fencing) and facilities (for instance, text books, computers, teaching aids, and curriculum) including private and public expenditure on education and, maintenance expenses of all kinds (Barrow & Rouse, 2005, p.1, Beirne & Campos, 2007, p.59, Chang & Radi, 2001, p. 8). These factors can improve quality of educational outcomes. Hence, properly trained and having adequate teachers with appropriate text books can have an enormous impact on improving the quality of education (AusAID, 2008, p.14). Chang & Radi (2001, p. 8) noted that educational inputs contains key components that can contribute toward achieving and improving an effective educational system. Proper planning, resources and adequate funding in order to realise effective and efficient institutional development are required. Furthermore, the successes of educational innovations are dependent on the availability and creative use of the secured internal resources, as well as institutional and managerial capabilities (Tagis, 1993, p.159).

Most societies are unable to mobilise the resources they have or able to generate or make use of resources they generate. Bhola (1993, p.64) notes that resources may include cognitive, influence and goodwill, materials and personal resources to resources in terms of institutional capacity and time. Gannicott & Throsby (1992, p. 224) describes these resources as “complex bundles of input” that can improve educational developments as education system is part of a highly interactive subsystem with other parts of the whole system (Shaeffer, 1993, p.10). Whilst educational inputs and resources are required to achieve quality development of the education sector, there are costs involved. The increasing costs of educational resources can be identified by evaluating the overall costs and benefits. In explaining the various costs of education, Psacharopoulos & Woodhall (1985, p. 33) highlighted two that are borne by society—the ‘private rate of return’²⁰ and the ‘social rate of return’²¹. Though, commonly, it is the state’s prerogative to cover the costs of

²⁰ Private rate of return - measures the relationship between individual costs and benefits

²¹ Social rate of return - measures the relationship between all the social costs that must be borne by society and the benefits that are expected to accrue to society

providing educational services for their citizens (O'Faircheallaigh, 2004, p. 42), there are increasing consensus that educational costs should be a shared responsibility among key stakeholders (AusAID, 2009, p. 1). Furthermore, Quashie & Zeming (1993, p.137) argue that to offset costs, partnership between stakeholders is necessary to meet the cost of education and also to meet its plans for expansion. There is evidence that education is a profitable and social and private investment shaped by families, employers, governments and private sector organizations (AusAID, 2009, p.1, Psacharopoulos & Woodhall, 1985, p. 55-128). For instance, a recent AusAID policy statement brands education as the “flagship sector of Australia’s increased aid programme” (AusAID, 2009, p. 1). Some countries have attempted to overcome financial constraints by using community labour to build schools and by allowing communities to provide goods and services (Psacharopoulos & Woodhall, 1985, p. 159). This can be attributed to many factors, one of which is the interplay of power dynamics within communities. When power dynamics exists such as in Porgera where PDA controls resources, school administrators typically have lesser control over the allocation of resources which results in less school input (McNamara, Deans & Brady, 1988, p. 6). Subsequently, teachers can have limited influence over other input factors that may arise from within the community and which can be beyond a school’s control.

In order to put such a control in place, strategies and policies must be formulated to address constraint relating to resource allocations, retention, policy and quality of education (Webster, 1993, p.188). Donors are also major players when it comes to influencing and directing policy and allocating resources to enhance education. For instance, among other objectives, AusAID’s aid programme for education emphasizes governance of the education sector within governments including support to teacher training, curriculum and school operations (AusAID, 2008, p. 14). Major donors such as the World Bank, United Nations, and others including international NGOs such as OXFAM and Care International among others play increasingly important roles in educational developments. However, education needs to respond effectively to a broader context of development and focus on issues larger than educational inputs and outputs. Formal education systems encourage links between the family, community and the surrounding environments (Shaeffer, 1993, p.10). These calls for a need to understand the importance of broad partnership and translate the rhetoric of participation into practical realities.

3.4.2. Factor Two - Participation in Education

‘Participation’²² is often used as a catch-all word in the development industry. It commonly refers to a social organizing principal and as such is embedded in the constitutional framework and social fabric of many different cultures (Avalos, 1993, p. 1). In fact, the participation of people has become a central issue of our time (Human Development Report, 1993). Significant change requires participation in many forms and at every level (Avalos, 1993, p.1). According to Gannicott (2006), any activity or investment in education is unlike other development interventions, and requires the participation of all stakeholders. Participation alone is not enough though. Avalos (1993, p.1) identified three tools of participation as equally important in promoting educational developments. The three essential tools that enable participation are knowledge, tools and commitment. The use of knowledge is to understand, interpret, broaden, reconstruct and apply which in turn requires the possession of tools. An important tool is language both oral and written which enables expressions, inquiry, communicate and represent visible forms of thought and ideas. In order to allow for sustainable development, wanting to participate and committing to this is equally important (Avalos, 1993, p.1). Especially in educational developments, it is necessary to understand the characteristics of potential partners and who can really participate (Shaeffer, 1993, p.16).

Furthermore, Guy (1993, p.40) differentiates genuine participation from rhetoric by describing authentic participation as one sharing conceptuality and practice: in other words participation geared towards ownership and responsibilities. Essentially the key to participation in any development process lies in people constructing their own understanding of the way in which developments should occur (Guy, 1993, p.40). Thus genuine participation empowers people to take responsibility for their own lives which is linked to sustainable developments. However, the burden of such participation can be significant. The ever-increasing demands of educational expenditures in developing countries have become cumbersome and unrealistic. In some of these countries, parents with little income can barely afford to meet the cost of their children’s education at all levels. Sadly, the cost of education in PNG is ever

²² The term participation has various meanings and is used in various contexts. Here, it mainly refers to the involvement of key stakeholders in enabling the education system to function. It may also include the overall participation of students as reflected in their performance.

increasing while its effectiveness in terms of participation and quality is among the lowest (Gannicott, 1996). This is in part due to the increasing demand for education, misappropriation of resources or ineffective implementation of plans and policies. Furthermore, there are institutional constraints affecting participation and changes in education, important to recognise in terms of power and domination (Guy, 1993, p.45). On the other hand, Gannicott and Throsby (1992, p. 223) noted that strategies for improving educational quality are likely to fail unless the important complementarities between the factors that determine quality are recognized. For instance, in a study among the Pere villagers of Manus province in PNG, Demerath (1999, p. 162) found that the local people's attachment to education revolved around notions of 'profitability' and 'return for investment'. Their study illustrated how locals' conception of education changed when education failed to create productive citizens for the modern state.

Furthermore, David Klaus (2001) described the participation and ownership observed in systems where overwhelming parental and community support existed. He reported that in such places, the people see education as being relevant to their various realities (Klaus, 2001, p. 3). Presumably, it should be the aim of all stakeholders at every level to ensure educational institutions are functioning, improving and adequately maintained. According to the Thematic Performance Report (AusAID, 2008, p. 15), schools that are operating well increase participation and provide children with better education. The provision of infrastructure, such as adequate classrooms and other facilities are essential and also increase participation in education. The cost of neglecting school needs over the years often reflects a lack of strong educational results and deterioration in student performance. AusAID long-term ambition is to sustain well-functioning and affordable education systems for schools in developing countries. Such input often produces immediate and significant benefits (AusAID, 2008, p. 16). In recent years, governments have been undertaking rigorous policy adjustments to develop educational plans. Donor agencies such as AusAID and NZAID have also made significant contributions toward policy reforms especially in the Pacific. Aligning donor assistance with government efforts is a significant component of educational development (World Bank, 2008). Furthermore, Islam and Mia (2007) argued that educational policies should take specific note of investing in girls' education and training. Such programmes should also aim toward positioning women for gainful participation in the labour force, increase their social status, and

promote gender equality with prospects for upward mobility and the goal of achieving a sustained, positive, rural population transformation. However, increasing such efforts to attract the participation of all stakeholders within a community can be difficult and challenging. Evidence on the rate of return suggests a shift of part of the cost burden from the state to individuals and their families should be considered (Psacharopoulos & Woodhall, 1985, p. 4). Not only does this spread responsibility more effectively, it increases stakeholder participation by sharing the costs in a way that promotes ownership of educational input. However, such investments are determined by the actual outcomes such as improvements in facilities and student success rates and other factors.

3.4.3. Factor Three - Educational Outcomes

Investment in education obviously requires tangible outcomes demonstrating an education system that is sufficiently effective (Coleman, 1975, p. 280). It is the responsibility of the state to improve educational outcomes in their countries, including better alignment of resources and priorities, better tracking mechanisms, and reforms related to teacher development and standards and curricula (World Bank, 2000). Previously, educational improvements were focused more on resource expansion and educational services (World Bank, 2000). However, future educational improvements should be related to policies that will enable existing resources to be managed effectively, and promote the engagement of partners and the mobilizing of community support and stakeholder participation (World Bank, 2000). The educational outcome measures used most commonly often involve measures such as educational attainments and average years of schooling (Beirne & Campos, 2007, p. 59). Apart from these, other tangible outcomes should include improved and adequate learning facilities; educational infrastructure such as classrooms, staff housing and fencing; and a coherent and supportive community that works in partnership with educational institutions. According to Coleman (1975), education leads to a higher quality of adult opportunities, in addition to simple equal-education opportunities. As such, education is a means to an end (as opposed to an end in itself) where equal opportunities refer to later life as well as the education process (Coleman, 1987, p. 28).

Whilst educational outcomes depend on various factors, leadership within education contributes significantly toward its achievement. The world is dominated by ideas that are impacting development and Simkins (2005, p. 9) singled out leadership as one of the major factors in fact, sometimes the only factor determining whether an educational organisation or institution, will succeed or fail. An important aspect in enhancing leadership and coordination is communication. Essentially, lack of communication between stakeholders often contributes to a weak culture which does not promote shared visions (Caldwell, 1992 as cited in Fabio Sala, 2003, p. 173). Although leadership in education stubbornly remains a difficult challenge, Simkins (2005, p. 10) proposed that current leadership seek out “what works”, and pursue a leadership approach that focuses on outcome specification, effective planning and quality assurance. This approach requires leadership that can empower others to lead and make wise decisions which is often missing (Simkins, 2005, p. 15). One leadership failure common within education is a lack of understanding about what needs to be done and what outcomes should be expected. Furthermore, there is deficient understanding of what it means to lead and to facilitate—even what it means to provide a public service. These are issues of sense-making and thus should guide educational outcomes through strategic leaderships (Simkins, 2005, p. 16). However, the problems involved in leadership and authority over educational organizations increasingly lie outside the formal hierarchy and consequently are beyond such controls most times.

In obtaining desired educational outcomes, maintaining and increasing support is critical for communities who wish to strengthen their human capital base as a strategy for economic growth and development (McNamara & Brady, 1988, p. 3). For instance, a direct impact of educational investment is often evident in rural household in terms of incomes which are often greater in non-farm incomes such as wages and other benefits (Psacharopoulos & Woodhall, 1985, p. 46). In highlighting the risks brought by natural resources extraction, Gylfason (2001, p. 858) noted that the authorities and other inhabitants of resource-rich countries become overconfident and therefore tend to underrate or overlook the need for good economic policies, including concrete policies for promoting solid educational opportunities (Gylfason, 2001, p. 859). A strategic approach is required to minimize these risks and maximize the available benefits by identifying appropriate policy principals (O’Faircheallaigh, 2004, p. 42). These policies must be supported by key stakeholders and aimed at

enhancing community development initiatives and sustainable development endeavours for communities affected by mining operations. For instance, Porgera mine communities live where resource extraction occurs as noted by Bonnell (1999) but educational outcomes are often low. It is therefore pertinent that such efforts must be boosted to apprehend the link between resource extraction and educational enhancement which will sustain the communities in the long-term and unforeseeable future. Development outcomes geared towards the future can be made possible through educational advancements.

3.5. Education as a Component of Sustainable Livelihood Premise

If mining towns and villages are not proactive and do not implement replacement economic survival strategies, they will almost certainly die a silent death the day the mine closes down (Cronje & Chenga, 2009, p. 413).

The key to establishing economic survival strategies as noted above lies in education (both formal and informal). This is important for communities affected by mining operations whose environments are often drastically destroyed. Education in this regard must be pursued in view of sustenance strategy for mining communities. Although the concept ‘education for sustainability’²³ may mean different things to different people, viewing education as the means to sustainable livelihood is essential. Linking resource extraction and its contribution through education to sustainable development (SD) is critical. Educational benefits attract significant attention at the negotiation tables prior to the development of natural resources, but quite often end up being neglected. There has been considerable argument regarding the contribution to community development by stakeholders other than the state (e.g., resource extraction entities) and this has been seen as a “contentious issue” (O’Faircheallaigh, 2004, p. 42). One perspective is that while mining companies pursue their own interest they should also be promoting local interests as recompense for destroying the local environment and livelihoods (Veiga et al, 2001, p. 191). In most cases such mining payments are used to fund basic services like health and education. However, others

²³ Environmental education developed in the 1970s and resulted in three perspectives on environmental education: education in the environment (experiential education), education about environment (providing information), and education for the environment (critical and political education that examines the origins of the environmental problems and prepares a learner for action) (Delyse & Springett, 2005).

contend that this is counterproductive, as such subsidies can make it difficult, if not impossible, for local people to see the need for educating their children to prepare for the future when current necessities are always financed by others (Gylfasons, 2001, p. 850; O’Faircheallaigh, 2004, p. 42), although in certain circumstances it may be desirable to use a portion of the mining payments to fund services. This view holds that it is the government’s responsibility to provide such services for its citizens (O’Faircheallaigh, 2004, p. 43).

In addition, it is thought that other forms of payments, such as royalties, should be strictly for landowners to use at their own disposal. Since royalties are economically viable revenue that includes cash and non-cash benefits, they serve as a genuine form of local SD if used appropriately (Banks, 2003, p. 233). Royalties are only available to communities affected by resource extraction but it has the potential to improve living conditions. However, it is not the existence of natural wealth that seems to be the problem, but rather the failure of public authorities to convert this wealth to equitable goods and services (Gylfasons, 2001, p. 85). This, however, is only made possible through prudent and sound policies and practices which turn abundant natural resource riches into unambiguous blessings for the people (Gylfasons, 2001, p. 851). In theory, community policies within the context of SD could deploy part of the income generated by a mine to develop communities which are independent of the mine and could have the capacity to continue to function after mine closure (Humphreys, 2000).

One of the successes of SD has been its ability to serve as a grand commitment between those who are mainly concerned with natural environment, those who value economic development and those who are dedicated to improving the human condition (Kates et al., 2005 as cited in Cronje & Chenga, 2009, p. 416). SD seeks to redefine development so that it guarantees minimum quality of life standards through promoting an equitable distribution of resources and should translate into sustainable livelihoods (Emberson-Bain, 1994). However, it comprises many elements and these are usually categorized into three dimensions: economic, social and environmental. The social dimension is linked to enabling social development and improving people’s livelihoods (Cronje & Chenga, 2009, p. 416). Insofar as education (as an aspect of sustainable livelihood) is concerned, within the mining context education is

a key social development (Veiga et al., 2001, p. 191). Importantly, SD entails a net improvement in the physical, social and economic health of the local community wherever mining occurs and may take the form of improved health, education and infrastructure. The aim should be long-term improvement in the standard of living for the affected communities (McLeod, 2000, p. 120). Most of these developments could be seen as either fulfilment of corporate social responsibilities (CSR) or non-monetary compensation for environmental costs (Imbun, 2007; McLeod, 2000). Educational development, as a way of sustaining livelihoods, is a central means to SD in the context of mining. Within contemporary PNG, mining operations have contributed significantly to the development of the education sector, especially in landowner communities. While the provision of education services is the role of the state, communities around mines benefit immensely from mining projects to some extent directly and in most cases indirectly through mining revenues through national government budget allocations. It is therefore appropriate to explore the education system in PNG.

3.6. Educational Development in Papua New Guinea

During the colonial period, education was almost exclusively run by the missions in PNG (Sillitoe, 2000, p. 208). Government primary schools have been present since the 1950s whilst secondary schools have come into being more recently. However, the 1960s saw relatively few Papua New Guineans gain access to (mostly) primary education through those mission schools. This changed in the early 1970s when the current national education system was established (Connell, 1997, p. 241; National Plan for Education, 2004). The missions viewed education and the running of schools as ‘agents of change’, while the colonial administrators established educational institutions to promote economic growth and development (Gannicott, 1990, p. 41; McKeown, 2006, p. 266; Sillitoe, 2000, p. 208). Only certain parts of the country had access to basic education at that time, while the rest of the country caught up slowly; therefore, education in much of PNG could be described as a recent phenomenon (Guy, 2010, Rombo, 2007). As the years rolled by, the PNG education system began to expand with the support of the private sector, churches and international donors.

Over time, the government's nationwide education system²⁴ grew to be one of the largest public sector employers in PNG, with a highly decentralised system framed from the establishment of the provincial government system in 1978 (Sillitoe, 2000, p. 208). The decentralization process gave provincial governments the responsibility for planning, financing, staffing and maintaining educational institutions up to secondary levels (National Plan for Education, 2004). However, tertiary education has remained the national government's responsibility. Since the major education reform of 1993, PNG has seen a dramatic expansion of its education system focusing on increasing access, equity and retention at all levels to support progress toward Millennium Development Goals (MDGs) and the "Education for All" (EFA) goals for achieving universal primary education (World Bank, 2007, p. 15). Whilst so much hope was placed on education as demonstrated by international goals including the Medium Term Development Strategy (MTDS), and individual donor objectives, but for many of the sectors of the society, education is becoming less, rather than more available, and its quality is eroding (Shaeffer, 1993, p.9). For instance, dramatic increases in enrolments since the 1980s have also seen steadily rising dropout rates (Connell, 1997, p. 241; Gannicott & Avalos, 1994).

The World Bank Report (2007) noted that in PNG many well-developed and documented education policies and reforms will only work if there is a coordinated and sustained commitment from the central agencies of the government to give effect to the plan. According to Tagis (1993, p.147), experience has shown at the political level, governments inconsistent and lack of long-term commitments to resource allocation for priority tasks, unexpected shifts in policy and resource allocations are common within the education sectors which are often detrimental to the overall progress of the education system. To enable realistic changes clear choices need to be made and a distinction between the roles and responsibilities of the state being made clear (Tagis, 1993, p.152). However, it appears that PNG's political and administrative systems promotes paper commitments and development more than long term, stable and consistent commitment to meeting the educational needs of its people (Pokawin, 1993, p.93). Furthermore, Webster (1993, p.187) argues that strategies and policies developed at the national level have very little effect at the school levels

²⁴ National Education System – Elementary and secondary schools, including the vocation centres, are managed by the PG and the LLGs, whilst tertiary institutions such as universities and colleges are managed by the national government.

because the level of diagnosis and development have mostly been at the national levels. Webster (1993) further noted that strategies and policies developed at the local levels would be more effective in contributing towards national efforts. It appears that most efforts at the national levels are self-serving and not directed at schools that matters most. There must be continual support in terms of funding, provision of information and a system of ensuring accountability (Webster, 1993, p.192). Prior to independence, education was for the few in PNG and it was also gender-specific, making universal primary education a continuous government rhetoric (Guy, 2009, p. 132) This means the government did not fairly expand the education system with adequate educational infrastructures which had arisen from inadequate financial support and resulted in costly educational fees that prevented eligible students from enrolling (Connell, 1997, p. 242; Guy, 2009). In some cases, high educational costs were due to low teacher-pupil ratios, high salaries and accommodation costs for teachers, large student boarders, boredom, a perceived lack of achievement and fragmentation in the tertiary education system (Connell, 1997, p. 244, Gannicott & Avalos, 1994).

These educational dilemmas are particularly common within mining communities. Therefore the education system in PNG is characterised by limited accessibility, great disparity in age and gender, an appalling attrition rate, shortage of teachers, lesser opportunities to continuing education, and the vast majority of students do not get to enter formal employment (Tetaga, 1993, p.80). Despite investment in the expansion of the education system, the overall results have been limited, inefficient and expensive (Connell, 1997, p. 242). However, the increasing demand for education forced the government to undertake rigorous reforms and policy changes with support from donor partners (e.g., AusAID and The World Bank). Such policy changes notwithstanding, the same issues of retention, access, poor participation and increasing costs still plague the PNG education system (Guy, 2009, p. 133). Even the extension of educational services to remote parts of the country has not guaranteed the provision of quality education nationwide (Connell, 1997, p. 241). These shortcomings have demonstrated that PNG's education system is not yet geared toward reaching the bulk of the population (Samana, 1988, p. 9). Various initiatives have been tried, including shifting responsibilities within the bureaucracy and conducting several major reviews, but little has been achieved (Connell, 1997). For instance, the education sector review in 1991 discovered that the crucial issues

affecting educational provision in PNG was the inadequate coverage of the system throughout the country, low retention rates and the quality and relevance of education (Tetaga, 1993, p.71). Today, anecdotal reports show that 50% of secondary school fees remain unpaid and the majority of PNG communities make little or no contribution to the upkeep, maintenance of infrastructure of their schools (World Bank, 2007). Although PNG's National Education Plan²⁵ (NEP) emphasizes the importance of consistent community and parental involvement in school maintenance, this does not seem to be happening in many communities due to low income and geographic remoteness, among other reasons (World Bank, 2007). However, Gannicott (1990, p. 46) argues that education is still a productivity enhancing investment and should provide the means for calculating the social and private returns to society in many ways. One of these ways was to contribute to human development. PNG's Medium Term Development Strategy²⁶ (MTDS 2005-2010) in line with the Millennium Development Goals (MDG) does recognise education as crucial to meeting the country's human development objectives (World Bank, 2007).

As discussed earlier, the concept of human development is an envelope concept in which PNG's constitution embodies the notion of liberation for individuals and social development. As an attempt to address educational impediments, a number of committees were formed and various policy reforms were undertaken by the government, including such as the Alkan Tololo Committee and the Matane Report²⁷. The Alkan Tololo Committee developed what they called "radical policies for education" whilst the Matane Report proposed a "radical philosophy of education" based on the notion of "Integral Human Development" (Guy, 2009, p. 134). One of their policies was:

Opportunities for education to be expanded to all Papua New Guineans including girls, children from isolated areas, and disadvantaged children (Guy, 2009, p. 132).

Although such policies exist, the limitations of centralised bureaucracies limit opportunities and are often unresponsive to the needs of the poor at the periphery of

²⁵ National Education Plan - The recent policy framework launched by the National Department of Education that aims to deliver educational output at a reasonable cost with support from various stakeholders.

²⁶ MTDS – The national government's five-year development plan for 2005-2010 that covers major aspects of development, including education.

²⁷ Principles of focus developed in line with the Eight Point Plan approved by the Cabinet in 1972; it is a ministerial report on the philosophy of education for PNG in 1986 (Guy,2010).

the system (Shaeffer, 1993, p.9). The overall goal and policy of the government relates to integral human development. A look at its people should guide where the government emphasis must be in pursuit of creating educational opportunities and achieving the goals (Tetaga, 1993, p.72). This relates to the Matane Report statement:

The Philosophy is for every person to be dynamically involved in the process of freeing himself or herself from every domination and oppression so that each individual will have the opportunity to develop as an integrated person in relationship to others. This means that education must aim for integrating and maximising: socialisation, participation, liberation and equality (Department of Education, 1986 as cited in Guy, 2009, p. 134).

The Matane report also infers the philosophies of Sen and Freire's concepts of giving freedom to people through education as discussed earlier. Although the Matane report contains all the key aspects needed to lift the education sector, educational policies still fall short of realising overall goals as they do not translate to meet the needs of the country. There continue to be high drop-out rates, poor academic standards, inadequate access, unacceptable quality and governance, poor facilities and infrastructure, and poor community support (Tetaga, 1993, Kale & Marimyas, 2003, p. 2; World Bank, 2007). One of the main problems facing education in PNG is the gap between government policies and the practicality in providing wider access to education to the majority of the population (Sillitoe, 2000, p. 211). Other weaknesses include unequal and declining allocation of educational resources, with high unit costs; and weak educational management and administration (Gannicott, 1990, p. 43; Guy, 2009, p. 135). For instance, schools in wealthier and urban centres have been better supported by both government subsidies and fees (World Bank, 2007). It appears that without a change in approach, PNG will not be in a position to move decisively toward achieving its objectives in delivering education, let alone achieving MDG targets and universal basic education goals (World Bank, 2007). Another key challenge identified by the World Bank is the increase in population growth, such that the numbers of children in need of education are expanding. The PNG government's MTDS also identified population growth as a current threat to development and growth, and Connell (1997, p. 241) reported that in recent years population growth has made access to education no easier than it was in the past. Sadly this has made PNG unable to reach satisfactory levels (Pokawin, 1993, p.92).

As a result of all these challenges, progress in educational development has been characterized more by quantity than quality in PNG (Gannicott, 1990, p. 58). Whilst PNG has experienced a steady growth in per capita income from revenues from mining, forestry and other enclave industries increasing dramatically, still the indicators of social wellbeing show steadily decline (Connell, 1997, Klaus, 2001, p.1). A short supply of competency in planning, policy making, management and higher level technical skills is thought to have contributed to this situation. Hence, Sillitoe (2000, p. 211) contemplated the need for urgent policy initiatives to address the problems of an education system perceived to be in crisis and failing the nation, as was widely acknowledged. In retrospect, people felt the educational system had not really achieved anything since independence (Samana, 1988, p. 4). However, the reality was the country could ill afford to increase spending on its education system, even though reform in national economic terms suggested it would be a good long-term investment (Sillitoe, 2000, p. 213). These views were supported by Gannicott (1990, p. 54) who stressed that according to international standards, all levels of education in PNG were still very expensive. However, these are views that maybe held true for most of the educational dilemmas experienced in recent years. Given the state of the PNG's education system, it is interesting to consider what the education system might be like for more fortunate communities and districts, like Porgera, which host a world class mine.

3.7. Educational Development in Porgera: Issues and Progress

There will be an educated generation when the gold has gone (Mascord, 1998, p.2)

Mascord (1998) postulated what the mine could do for local Porgerans immediately after mine production began in 1990, proposing future development of the education sector using the unprecedented benefits from the mine. Formal education systems²⁸ were introduced into Porgera district during the 1960s by mission agencies. The first community school was built at Porgera Station in 1967, followed by three more

²⁸ The terms 'education system' and 'educational institutions' are interchangeably used. They denote all schools within Porgera, including vernacular pre-schools, primary community schools, the vocational centre, the technical high school, the College of Distance Education, and the Department of Open and Distance learning.

community schools (PJV, 2002, p.54; Porgera District Plan²⁹, 2008, p. 30). However, by 1980 enrolments had lessened due to poor success rates, and the rush for alluvial mining nearby (Porgera District Plan, 2008, p. 200). A socioeconomic study undertaken by Pacific Agribusiness identified educational constraints with an emphasis on the condition of educational institutions within the Porgera valley (Pacific Agribusiness, 1987, p. 1). The study showed that existing schools were continuing to close and re-open time and time again due to low enrolment, poor teaching, poor attendance, and poor accessibility, competition from alluvial mining, high staff turnover, and even very poor parental and community support (Pacific Agribusiness, 1987, p. 4). As noted, the opportunities provided by alluvial gold mining played a significant role in diverting community attention away from the formal education system (PJV, 2002, p. 54). This contributed to Porgeran's low educational status and ultimately led to their lack of interest in attaining an education, an attitude noted to have become a common feature of Porgera schools at the time (Pacific Agribusiness, 1987).

Prior to the mine operation, education like other government services³⁰ in Porgera was in appalling condition, and there were limited and poor government services (Banks & Bonnell, 1997, p. 5). For instance, school facilities were run down to the point that four community schools had to be closed. However, with assistance from the mining company, the government and NGOs, five new community schools, one high school, a vocational school and nine elementary schools were built between the start of the mine in 1989 and 2000 to meet the needs of the influx of people coming into Porgera (Porgera District Plan, 2008, p. 200; PJV, 2002). By 1993, Porgera did have the necessary mix of educational institutions to cater for most of the pre-tertiary education needs of Porgerans, including vernacular pre-schools, community schools, an international school, a vocational centre, a technical high school, and the College of Distance Education (CODE) (Filer, 1999, p. 6). Practically, Porgera's educational base did not really take off until the construction of new schools and classrooms in 1992 (Filer, 1999, p. 6). As such, Bonnell reported that "development of the Porgera mine was the catalyst for significant improvements in education services for Porgera district" (1999, p. 43).

²⁹ The Porgera District Five Year Development Plan was developed by Harmony, Inc., and was launched in 2008.

³⁰ It was the central role of the government to provide services such as roads, education, health, and maintenance of law and order; however, these services were nonexistent or were very of poor quality prior to mine operations.

The operation of the Porgera mine presented an opportunity for Porgerans to catch up and enter the modern world whilst contending with the socio-economic issues as a direct impact from the mine operations of which education was just one— albeit, one that underwent significant change (Banks & Bonnell, 1997; Bonnell, 1999, p. 27,³¹). Porgera Joint Venture (PJV) recognized education as a key driver for SD and has been facilitating a wide range of educationally focused assistance such as classroom construction, teacher housing, student dormitories, classroom equipment, scholarships and localized mining skills training (PJV, n.d, p. 30-32). PJV's commitment to improving local livelihoods was reflected in PJV's current General Manager Mark Fisher's Statement:

During its lifespan, a world class gold mine such as Porgera produces more than just gold. It helps to improve the lives of people living and working in the local community by providing jobs and opportunities for education and training and through the development and maintenance of important urban services and infrastructures...I am very optimistic about the future of Porgera and the positive legacy that we will leave (PJV, n.d.p.1).

In their attempt to improve lives, PJV has helped build or improved dozens of schools across the province and invested in education and training since 1990 (PJV Responsibility Report, 2009). An important framework was the establishment of the SML Children's Trust³² to ensure future generations continue to benefit from and have access to high quality education with proceeds from mine royalties (PJV, n.d., p. 33). To achieve such long-term sustainability in educational development, long-standing partnerships with stakeholders and community leaders have been reportedly established (PJV Responsibility Report, 2009). Apparently, after 1990 problems identified within the educational sector did not improve but instead became chronic issues. For instance, overcrowding led to problems with the quality of education provided, unacceptably high teacher–pupil ratios, lack of curriculum, lack of sustained community support, vandalism and tribal fighting, issues with teacher subsidies and

31 Banks and Bonnell did a series of social monitoring works under the Porgera Social Monitoring Programme (PSMP) between 1990 and 199. In addition, the work of John Burton on the Porgera Census (1997) looked at the socioeconomic impact of the mine.

32 A Trust Fund established by an agreement between the PG and the SML landowners. 10% of the royalty payments from the PGM are transferred into the Trust each year through EPG. The trust is managed by a Board of Trustees which includes SML landowners and representatives of the National Department of Treasury, the PDA and PJV (PJV, 2002, p. 53).

salaries, a lack of sporting facilities, the high school's failure to keep up with expansion, teacher and pupil absenteeism, and lax parental attitudes (Banks & Bonnell, 1997; Bonnell, 1999, pp. 46, 48). After mine production began, dramatic improvements in education within Porgera looked promising with the much needed educational institutions made available, still lacked facilities and were plagued with poor management and cash flow problems (Bonnell, 1999, p. 43, PJV, 2002, p.55). Complicating this was the prospect of downsizing the education budget by the government, stripping free education and leaving parents to directly meet the costs of educating their children (PJV, 2002, p. 55). Porgerans were challenged to accept that quality education is not a free commodity. In fact, PJV's view is that good education demands community contribution to the cost and maintenance of educational services, and that the misnomer 'free education' is, in part, responsible for the decline in community ownership of educational institutions (PJV, 2002, p. 55). The current use of mining revenues by the Enga Provincial Government (EPG)³³ to subsidise school fees does little to encourage individuals or communities to contribute toward attaining education, and the lack of community and parental support for teachers and educational institutions has been a major cause of the collapse of educational services in some communities (PJV, 2002, p. 55). However, key stakeholders and the community do have the capacity to make a significant contribution to all levels of education in Porgera now and beyond the mine's lifetime (PJV, 2002, p. 56). However, this can only be achieved in partnership with the government and other stakeholders, as the principal issue for the education system in Porgera is its viability after mine closure.

3.8. Summary

This literature review comprised six key major sections that looked at education and development, significance of education, factors that contribute to an effective education system, education within the context of sustainable livelihood, educational development in PNG and educational developments within the Porgera mine communities. According to the literatures reviewed based on the philosophical views of Amartya Sen and Paulo Freire, education gives freedom to people from all forms of

³³ Porgera Gold mine is located within the Enga Province. It is the only province among 20 with a unique, one-language-only population, although the Ipili dialect does differ from the Enga dialect.

unfreedom and enables people to access the opportunity to live quality life. Sen and Freire's views also blend in with PNG's constitution and policy documents which also call for greater opportunities for all. However, besides the significance of education, there are still impediments that deny people access to education and development due to many factors such as marginalisation, tyranny, or ignorance. In PNG, the cost of education is increasing and many of the government institutions are plagued with on-going problems which make education a luxury. This makes a lot of remote and isolated communities miss out on educational opportunities. Because the government cannot be able to meet the educational demands of the people, many people in isolated communities that host mining operations turn to mining companies to provide for these services. However, the literature review shows that not all companies provide for the communities as many companies still think it is the government's responsibility. Regardless of that mentality and attitude, the literature further noted that education can be enhanced if given the appropriate inputs including genuine participation and commitment from all stakeholders and a change of attitude and heart by the people themselves. The literature further revealed that there are on-going problems within PNG's current education problem at the national levels which also spills over and affect schools at the local levels. The literature attempted to identify the significance of education and how it can be enhanced in mining communities as a sustainable livelihood strategy for communities affected by mining operations. Although education falls within the major core of many mining company-funded initiatives the views and perceptions of local communities, parents and teachers were often missed and not obtained. This thesis research project has attempted to fill that gap in the literature. The next chapter discusses the research framework and the methods used in undertaking this study.

CHAPTER FOUR : RESEARCH DESIGN AND METHODOLOGY

4.1. Introduction

This chapter outlines the theoretical framework and research methodology used for this study. Firstly, a conceptual framework for this study is discussed reflecting on the literature reviewed in chapters two and three. This study uses a sustainable livelihoods approach (SLA) of development advocated by Robert Chambers and Gordon Conway, to discuss and show the conceptual framework around this study and my thinking behind how this study was to be undertaken, using qualitative methods of research within the SLA framework. Thus, this study looks at education as a key aspect of sustaining livelihoods in enhancing sustainable development of communities affected by mining, in which this concept seemed appropriate. Secondly, discussions on the actual research methodology are presented. In this section I will discuss the research site and identify the research population followed by a discussion on the data collection methods (qualitative research). Data analysis procedures are then discussed including discussions on issues of research trustworthiness and validity of research data. Lastly ethical considerations are then presented with a summary of the chapter.

4.2. Research Conceptual Framework

In recapping on the literature reviewed on mining and education in chapter two and three, this chapter is linked to a conceptual framework in which this study was undertaken. Education appears to be the appropriate medium for marginalized people to realize their potential and improve their livelihoods. One method that has been increasingly adopted within participatory development interventions to address all forms of deprivation is the Sustainable Livelihood Approach (SLA). This approach of development seems appropriate especially when studying issues related to marginalized communities livelihood sustenance that are greatly affected by major resource developments like mining. SLA is not only an approach but a tool that can be

used for research as discussed in the next section with an explanation of how SLA is relevant within the research context and methodology discussions for this chapter.

4.3. Sustainable Livelihood Approach to Education

SLA is a 21st century ideology framed to address poverty and was developed by Robert Chambers, one of the leading thinkers of people-centered development who has advocated providing a ‘voice to the poor’ and author of many books and articles on participatory development. The concept of a sustainable livelihood was first put forward in a report by the World Commission on Environment and Development in 1987 around the same time the concept of SD (see chapter three) was debated hence SDs definition emerged. It was further expanded by Robert Chambers and Gordon Conway in 1991 when they defined sustainable livelihoods to mean:

Livelihood comprising capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Chambers & Conway, 1991, p.6)

Since then, development agencies and governments have taken genuine interest in the SLA methods and have been using it to design their own development methods and approaches. For instance, SLA rose to prominence in the United Kingdom’s (UK) Department for International Development (DFID) beginning in 1988. Other organizations such as Care, Oxfam, the Swedish International Development Agency (SIDA) and the United Nations Development Programme (UNDP) were already exploring SLA before 1987. SLA’s growing support was evidenced in its adoption by these leading development organizations (Carney, 1999, p.11, Krantz, 2001). More recently, the Institute of Development Studies (IDS) and DFID in the UK began using SLA concepts and methods with modified definitions (Krantz, 2001, p.1). Specifically, IDS modified Chambers and Conway’s definition of SLA to mean:

A livelihood comprising the capabilities, assets (including both materials and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain and enhance its capabilities and assets while not undermining the natural resource base (Krantz, 2001, p.1)

SLA can be used in different ways when contemplating development methods and the approaches involved in delivery mechanisms for improving livelihoods. SLA helps formulate development activities, facilitates identification of practical priorities, amplifies the voices of the poor and points to priorities for research and policy in the 21st century (Carney, 1999, Serrat, 2008, p.1, Chambers & Conway, 1991). Chambers and Conway (1991) further contended that SLA enhances capabilities, improves equity, and increases social sustainability. According to Krantz (2001, p.2), SLA can be used as an analytical framework (a tool) for programme planning and assessments or as a programme in itself. Furthermore, it can be applied for planning interventions, reviewing and evaluating projects, researching policy analysis and development (Khan, 2000). These views add substance when considering educational developments for people whose livelihoods are greatly affected by mine developments and their need for preparing for post-mining life. Thus SLA provides a sound framework for exploring the issues around the main objective of this research, which looks at the sustainability of educational institutions as livelihood support systems communities around the Porgera mine may embark on in terms of post-mining. As Carney (1999) asserted, SLA “adds value to efforts” and focuses on filling gaps by acknowledging and addressing the implications for institutional and organizational changes.

Furthermore, SLA is people-centered, responsive and participatory and is conducted in partnership with the public and private sectors to address sustainability often in a given timeframe whether short or long-term (Serrat, 2008, p.1). In doing so, SLA’s uses of timeframes are capable of meeting the demands of long-term development initiatives with flexibility and dynamism enough to respond to people needs (Carney, 1999). However, what draws this research into alignment with this framework is the reality that SLA explicitly highlights and stresses the need for external institutions to work in ways that reflect the reality of poor people’s experience when it comes to earning a livelihood (Carney, 1999, p.11). The approach also spells out clearly the

four dimensional aspects of SD which include the economic, environmental, social and institutional (Carney, 1999, p.11). However, external support such as involvement of donors or private entities must recognize the dynamic nature of livelihood strategies in every development intervention. The field work enabled me to deal with issues of educational institutions around sustainability, institutional support systems, accessibility, infrastructure assessment and facilities, fairness, power relations and participation. In essence the work for this thesis included researching genuine sustainable livelihoods aspects for local people after the mine closes. It particularly looked at education from a sustainable livelihood approach to investigate how it can enable local communities to sustain themselves even after the mining operations have ceased. Based on this premise, SLA seemed appropriate in exposing, describing and explaining the themes I will be dealing with in this research. Livelihood comprises capabilities, assets and activities required for a means of living (Serrat, 2008, p.1).

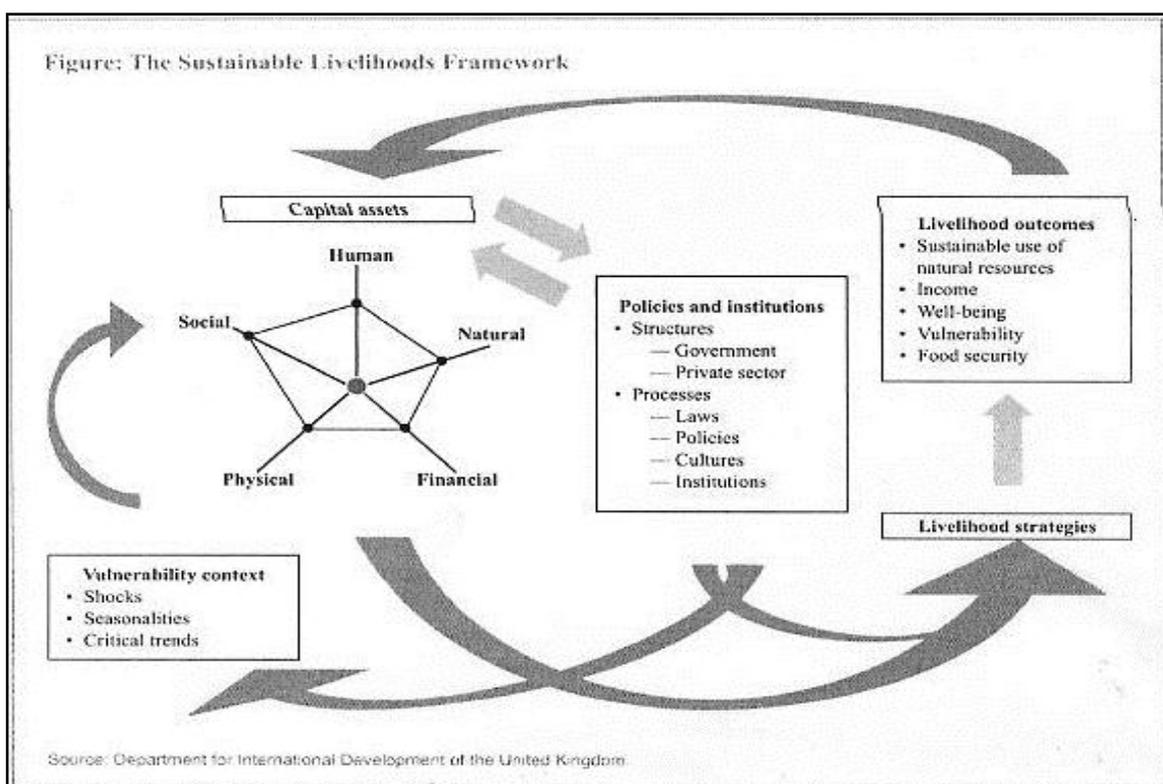


Figure 4.1. The livelihood framework developed and used by DFID (Source DFID, 2008).

They are deemed sustainable when they can cope with and recover from shocks and stresses; maintain their capabilities, assets and activities both now and in the future (Serrat, 2008). SLA indeed provides the means for considering development objectives and priorities, recognizing the ways poor and vulnerable people live their

lives, and attending to the importance of policies and institutions (Serrat, 2008). I found this format relates well to my own views on how development should occur, especially for communities in areas that are impacted by large scale mines. Chambers and Conway's (1991) views also link in well with Amartya Sen's perspective on development as freedom for the marginalized, poor and low-class of society who mainly live in the developing countries.

Ideally, the IDS framework as part of SLA is summarized in figure 4.1 on the previous page. This framework comprises three major elements, namely livelihood resources, livelihood strategies and institutional processes and organizational structures (Krantz, 2001, p.2). It involves institutional processes as they are the deciding factor in how issues of power, decision and resource allocations are determined. These are, in fact, the central issues of this research project. Krantz (2001, p.2) argues that to understand the complex process through which livelihoods are constructed, one must analyze the institutional processes and organizational structures that link these various elements together. In doing this, it is essential that SLA fully involves local people to let their knowledge, perceptions and interests be heard (Krantz, 2001, p.2). The three principles in SLA that fit well with this research and according to Krantz (2001) are; Firstly, the realization that economic growth may be essential for poverty reduction but there is no automatic relationship between the two as it depends on the capabilities of the poor to take advantage of expanding economic opportunities. Secondly, poverty as conceived by the poor themselves means more than earning a low income; it includes other dimensions such as poor health, illiteracy, and lack of social services and most significantly, a state of vulnerability and feelings of powerlessness. Lastly, the current recognition that the poor themselves know their situation and needs best, and must therefore be involved in the designing of policies and programmes to better their lot (Krantz, 2001, p.2). These views are further expanded by Alberto Arce when he argues that:

A more dynamic approach to the understanding of the local livelihoods, which stresses the interplay and mutual determination of the contestations of values and relationships and which recognize the central place played by human action and identity rather than capital, is needed (Arce, 2003, p.204).

The second point expressed by Krantz particularly stresses the need to empower local people to take ownership of their own development. This idea was also advocated by

development thinkers such as Amartya Sen and Robert Chambers. Although SLA may take different forms and approaches, three common features tie them together: (a) its focus on the livelihoods of the poor, (b) its rejection of standard procedures from conventional approaches that involves taking entry points on specific programmes such as health, and (c) its emphasis on people in both the identification and the implementation of activities (Krantz, 2001, p.2). SLA has brought key elements together to represent a holistic and realistic view of livelihood systems embracing people-centeredness, participatory nature with its emphasis on sustainability (Khan, 2000). Therefore these foundations articulate and underpin the approach undertaken for this research.

4.4. Research Site and Participants Selection.

My field work was conducted at the Porgera Mine site in the Enga Province of Papua New Guinea (PNG). The mine site is located in what was once one of the most remote parts of Enga Province in the highlands region of PNG, the Porgera Valley. It lies 130km West-Northwest of Mt Hagen and 600km northwest of the nation's capital, Port Moresby (Barrick, n.d, p.4). The Porgera Gold Mine began operations in 1990 and became a "world class mine" in 1992, (third largest gold mine in the world) and one of the most "spectacular successes" of the mining industry from a technical and financial perspective (Banks, 1996, p.260, Finlayson, 2002, p.32). This ranking effectively describes the magnitude of the Porgera mine and its impact. Porgera is home to the Ipili people who have strong cultural traditions and characteristics, and the Porgera district has two Local Level Government councils (Hewa and Porgera). In order to reach the research site, I travelled from Port Moresby to Mt Hagen by air and then boarded a PJV chartered plane and arrived at Porgera after about forty minutes of flight. Accommodation, transport and office space were provided by the Community Planning and Development Unit of PJVs Community Affairs Department.



Figure 4-1 Map showing the location of the Porgera Gold Mine on the PNG map (Refer to the appendix D for a detailed map of the Porgera mine) (Source)

4.4.1. Selection and Composition of Research Participants

Participants from schools and key public and private institutions who have a direct impact on the area of study were pre-selected. However, research participants from the local mine communities were selected randomly and on an ad hoc basis. A total of 38 participants took part in the study. Out of the 38 participants, 12 were females and 26 were males. Primary focus was placed on schools and landowner parents in order to explore and gain their insights into the progress of educational developments within Porgera mines vicinity. As such, a representative selection from a cross-section of the community involved in implementing education was selected. The table below shows research participant's composition.

Table 4.1 the Demographic Coding of the Research Participants

Institutions	Codes	Gender	Number of Participants	Role/Position
All schools including CODE, Vocational and DODL, Primary and community schools, High School	EIA	All Males	12	Includes Headmasters, Principals, Managers and Coordinators
Local People	LOY	3 F/3M	6	Local Landowner youths, Landowner parents Local Landowner Elites
	LOP	3F/3M	6	
	LOE	3F/2M	5	
Churches	CL	2 M	2	Church Leaders
Public and Private Institutions	MKS	2 F/5M	7	Leaders from PDA,PJV, District education, Rotary Australia, PDWA, PLA
Total participants		12 Females/ 26 Males	38	

The composition of research participants included leaders from the main public (government) and private (PDA, PJV) institutions, the churches, local communities (youths, parents, and local working elites), Rotary Australia, and the Porgera District Women’s Association (PDWA). The original intention was to engage views of landowner leaders, which include LLG president, councilors, PDA and PLA Chairmen but all attempts made to meet with these individuals failed (refer to chapter one limitations). This is a shortfall for this research, as their perspectives would have contributed significantly toward strengthening the findings. However, a good number of responses came from school headmasters³⁴ (EIAs). Most of the school administrators interviewed had spent more than five years at their respective institutions, apart from a few who had just come into running their schools recently. Additionally, local participants were randomly selected purposely to collect a holistic sample of their perceptions. As such, an equal number from different age groups were involved (youths, adults, and local elites working in the mine). Other key stakeholders directly influential in the delivery of education are the churches (predominantly Seventh - Day Adventist and Catholic) and their leaders were involved. It is important to note that positions are used interchangeably used hereafter to refer to certain groups

³⁴ Headmasters and Principals are interchangeably used within this research.

of people. For instance, the terms ‘EIAs’ refers to ‘Headmasters’ and ‘Principals’ who are people in charge of running the schools. In addition various codes are allotted for each research participants, for instance, all headmasters and Principals were included under the ‘Educational Institutional Administrators’ (EIA) category and all organizational leaders from the private sector institutions and the public sector institutions are categorized under the Mine Key Stakeholders (MKS) category. The term ‘local people’ refers to the local Porgeran citizens and ‘church leaders’ refers to the church leaders within Porgera that are named as taking part in the study.

4.4.2. Justification for Choosing Research Participants

Research, regardless of the form it takes and whichever way it is directed, must be valid (Wiersma, 2000). For research to be valid it must be based on evidence or facts that are “capable of being justified”. As such, a cross section of participants from both genders was selected in order to achieve a representative view of the key stakeholders. Participants were intentionally selected to suit the SLA approach of research, which also blends in with the Whole Institutional Approach (WIA) where I tried to include a representation of key stakeholders as a whole in this research. This latter entails focusing on educational processes and demands participation and collaboration that offer attractive ways of obtaining knowledge, attitudes and actions for sustainable educational developments (Robinson & Shallcross, 2006, p.241). WIA also integrates all aspects of a school, such as teaching and learning, participation and active citizenship in line with SLA (Robinson & Shallcross, 2006, p. 41). In addition, WIA provides integration between the state, businesses, individuals and communities; such that it was appropriate to seek the views of a wider cross-section of the community.

4.4.3. Conducting the Field Work

Upon arrival at the research site, a research plan was developed in consultation with the Porgera Mine Environment and Community Planning (CPD) Senior Project Officer, and was approved by the CPD manager who both signed and consented. A maximum of three interviews were conducted each day at the most. Formal appointments were made prior to visiting schools and organizations, whilst meetings

with local people were held as and when one became available. Local individual participants were selected randomly from the villages in and around Porgera and Paiam station. Although the mine operations affect two LLGs (Hewa and Porgera LLG), the study concentrated only on the Porgera urban area (see context section in chapter one). The field work took six weeks and most of this time was spent in Porgera Valley visiting schools and meeting with the school boards, principals, parents, churches leaders, landowners, district education officers, PJV officers, and management and PDA staff.

4.5. Data Collection Methods: Qualitative Research

Qualitative methods were applied for this research. These involved participant observations, unstructured interviews, case studies and focus group meeting (De Vaus, 2002, p.5). Qualitative methods can produce rich data about real people as recorded using observation and interaction (Richards, 2009, p.35) and therefore a qualitative research approach links well with the premises of SLA. Although qualitative research data can be highly varied in origin, style including being uneven in detail and dissimilar in source and reliability, it examines the “how, what, and where” of things and their essence (Berg, 2009, Richard, 2009, p.35). This does not mean neat and tidy data can never provide good analysis, inferences and assumptions. However, Berg (2009) argues that the significance of qualitative research is that it gives “more meaning in itself, to the concepts, definitions, characteristics, metaphors, symbols and observatory description of things”. Therefore, it was appropriate to use qualitative research methods for this study since the assessment of educational institutions within Porgera involved various participants who were both literate and illiterate. Also qualitative research methods ability to assess the quality of things using words, images and descriptive analysis convinced me most to use this method. More so, this methods use of participant observations, unstructured interviews, case studies and focus groups and their ability to cut across disciplines and subject matters was considered appropriate (De Vaus, 2002, p.5, Denzin & Lincoln, 2008, p.3). In other words, qualitative research locates the observer in a world consisting of a set of interpretive material practices that make the world visible (Denzin & Lincoln, 2005 as cited by Alvesson & Skoldberg, 2009, p.7). Therefore much qualitative research seeks to make sense of the way themes and meanings are patterned according to categories

(Richards, 2009 p.38). The two main methods of qualitative research used for this research are explained further below.

4.5.1. Semi-Structured Interviews

The main method used in this study was semi-structured interviews. Semi structured interviews enable participants (both interviewers and interviewees) to discuss and interpret the world in which they lived, and to express how they regard situations from their own experiences and perspectives (Cohen, et al, 2000, p.267). This means an interview does not simply concerned with collecting data about life but explores embedded human experiences (Cohen et al, 2000, p.267). Kvale (1996) as cited by Cohen et al., 2000, p.272) noted a key characteristic of qualitative research interviews as ‘life world’, or the lived world of the subjects and their relation to it. This means interviews seek to interpret the meaning of central themes in the real world. This involves seeking qualitative knowledge expressed in normal language that is often descriptive, offering a variety of views of the same world, including positive experiences and the building of relationships.

As a Melanesian researcher, developing relationships was paramount for me. Semi-structured interviews were a tool that drew me into closer contact with my research participants so that I was able to develop relationships that opened up new horizons for data collection. The semi-structured nature of the interviews also enabled research participants to use their time with me as a method of airing their grievances, suggestions and solutions on issues that had been bothering them. Participants might have felt the findings of this project could open up opportunities for new development. For example, they may have been helped through the interview process to realize what has been working well in their communities and what was supposed to have been done but remained undone. This learning process on unfinished businesses was even more important during the interviews process because it took place while the participants still had the opportunity to address these issues before the mine closed down.

4.5.2. Participant Observation

Some authors argue that all research is a form of participant observation since we cannot study the world without being part of it (Cohen et al., 2000, p.305). I envisaged that an observational method was appropriate as I would observe what was 'on the ground', as compared to what was said by the respondents. The participatory observation method was a good match for this research as a lot of issues I asked about were either avoided or not discussed during the interviews due to sensitivity of the issues. Many of the participants felt reluctant to express their thoughts, perhaps because there was a likelihood of blaming each other. The data collected was therefore "observational" in nature, because I did not attempt to manipulate the situation (see Barrow & Rouse, 2005, p.10). In fact, most of the literature on the effects of educational input relies on observational data; typically because they are the most readily available data. However, the fundamental problem with observational data is that individuals choose their situations, such that the researcher must control for all the factors that led the individual to make their specific choice, as these factors might also be correlated with the outcome of interest to the researcher (Barrow & Rouse, 2005, p.10).

Whilst observations require explanations, it is equally true that explanations need to be tested against the facts. It is not enough to simply collect the facts, nor is it sufficient to simply develop explanations without testing them against facts (De Vaus, 2002, p.9). What makes observational data attractive is that they afford the researcher the opportunity to gather 'live data from live situations' (Cohen et al., 2000, p. 305). Furthermore, observational methods of research give the researcher an opportunity to look at what is taking place and what has taken place, rather than relying on second-hand information. Having used observation as one of my primary methods made it possible to understand the context; as Cohen et al. argue, observation makes it possible to see unconsciously missed things, discover things the participant did not freely talk about and move beyond perception-based data (Cohen et al., 2000, p. 305). Significantly, observed incidents are less predictable and there is certain freshness to this form that is often denied in other forms of research (Cohen et al., 2000, p.305). According to Morrison (1993) cited by Cohen et al, (2000, p.305), observations enable a researcher to gather data on the physical setting (physical environments),

human setting (people, gender, behaviours), interactional setting (interactions within) and programme setting (resources, organization). Since many people using qualitative approaches view observations as a powerful tool for gaining insight into situations (Cohen et al., 2000, p. 315), I decided to capitalise on this method as one of the primary means of conducting this research.

4.6. Data Analysis Procedures

Conducting research and gathering data is one thing, but analyzing the information so it will make sense is another task altogether. Data analysis remains one of the most difficult aspects of research. The success of any research is very much contingent upon the data analysis because it requires organization of information and data reduction (Gibson & Brown, 2009, p.1, Wiersma, 2000, p. 202). When analyzing data for this research, my intention was to reflect on particular aspects and settings that had been explored. This was to create generally interesting findings that could be used or taken forward in other contexts (Gibson & Brown, 2009, p. 1). Having in mind that qualitative methods stress the importance of categorizations, I searched for general statements about relationships and their underlying themes (Marshall & Robson, 2006, p.154, Alvesson & Skoldberg, 2009, p.7). Essentially, data analysis is inevitably interpretive in qualitative research; hence Cohen et al. argue that data analysis is less a completely accurate representation than a reactive interaction between the researcher and the decontextualized data, which itself is already an interpretation of a social encounter (Cohen et al., 2000, p.283). As noted by Cohen et al, (2000, p.283) there are several stages in analysis that generate natural units of meaning by which the researcher then goes about classifying, categorizing and ordering these units of meaning, structuring narratives to describe the interview contents and then interpreting the interview data. These processes were thoroughly followed and used in analyzing the data for this research. However, care was taken to not distort meanings during the transcription of the interviews.

4.6.1. Data Transcription

The results of this study were generated through a process of data transcription (see Wiersma, 2000, p. 21). Field notes and audio recordings were transcribed and analyzed. Transcription began when I was in the field, after each interview. This included taking field notes of observations and noting inferences from the field. Upon returning from the research, a considerable amount of time was spent in translating responses from Tok Pisin to English, and then rearranging the sentence structures to suit grammatical standards and making sense of the information without distorting what actually was said and meant as compiled in the field. Two main techniques (Categorizing and Coding) were used to analyze the data that was transcribed in order to arrive at main themes and to align emerging themes to the central themes.

4.6.2. Categorizing:

As indicated by the number of research participants, the semi structured interviews produced a lot of narratives. This is typical of qualitative research projects, in that they often produce large quantities of descriptive information from field notes and interviews (Wiersma, 2000, p. 21). This large quantity of information was categorized, coded, organized and reduced. In this process, categorizing was the main tool used to analyze the research data from the transcription process. As shown in Table 4.1 above, research participants were divided into three categories based on their demographic profiles. As qualitative data analysis often requires organization of information and its reduction, the data itself suggested the categories to be used for characterizing information so that comparisons could be made (Wiersma, 2000, p. 21).

4.6.3. Coding:

Coding is a process for organizing data and obtaining data reduction. In this research, coding was used to help with systematically going through the narratives line by line to write a descriptive detail of the participant's views. The codes were mainly used to identify who said what at each level. Importantly, codes were used to protect the identification of research participants. Qualitative researchers use coding to see what they have in the data, to categorize the data, and to identify the types of operations

they might perform in order to explore the relationships between their codes (Wiersma, 2000, Gibson & Brown, 2009, p. 4). Coding is more than the allocation of numbers to responses as it involves the creation of a classification system that imposes a particular order on the data and shapes what we find, translating respondent information into specific categories for the purpose of analysis (Cohen et al., 2000, p.283, De Vaus, 2002, p.147).

4.7. Validity and Trustworthiness

A research instrument is said to be valid when it measures what it claims to measure whilst having the reliability in which studies could replicate (De Vaus, 2002; Gibson & Brown, 2009, Sanders & Liptrot, 1993, Wiersma, 2000). This means methods used within the research should be able to obtain the same results on repeated occasions or in other words being in consistency (Sanders & Liptrot, 1993, De Vaus, 2002). In order to achieve consistency, I used the same questions (see Appendix E) to seek views from various stakeholders involved in this study. This was considered important because the findings from this study can be used by other people. Hence, De Vaus (2002) argues that the validity of research data is not merely the measure but also the extent to which the measure is put to use. Validity in research is designed to measure whether conclusions reached are valid to enable the interpretation of research results with confidence and the general ability on the use of its results (De Vaus, 2002, Wiersma, 2000). Hence, to obtain reliable and valid response, key stakeholders directly involved in the implementation of the education sector in Porgera were involved. My attempt to get reliable and credible information was considered important because the level of confidence in the study's findings are important, in other words the 'trustworthiness' of this research.

Trustworthiness is useful for reframing the issue of validity in qualitative research. Because meanings are constructed and open to a "multiplicity of interpretations", the notion of truth becomes something of a difficult concept to pin down (Gibson & Brown, 2009). Trustworthiness focuses on the context of data collection and methods of research rather than on its own inherent 'truthfulness' (Gibson & Brown, 2009). The search for truth helped me to reflect on how data is generated and on the relevance of the process of how data is to characterise (Gibson & Brown, 2009).

Hence, in this study, my position as a PNG national coming from a non-governmental experience reduced the chances of introducing any bias or swaying away from seeking the truth into the study. I was of the view in this study that, people who are the actual implementers needed to share their experiences and views on the progress of education within Porgera valley, and that they should tell how much the mine has contributed towards changes in their communities. However in order for this assumption to be trusted, this research must also be able to show that it has credibility by showing that it has fully gauged opinion from key stakeholders. On the other hand, research participants must be assured that information exchanged and collected should be used for purposes intended. In doing so a statement of confidentiality was signed witnessed by participants (See appendix A). This was also in line with Massey University ethical considerations which was a key aspect of this research.

4.8 Ethical Considerations

Ethical consideration in any research is important and cannot be done without undergoing standardized procedures. Therefore, ethical considerations and approvals was a considered vital prior to this research because ethical issues arise wherever social science researches are planned and conducted (Sanders & Liptrot, 1993, p.87, Berg, 2009, p.60). This highlights the need for recognizing ethical guidelines as significant planning steps towards undertaking successful and credible researches. In addition, the reasons for such process are described by Gibson and Brown;

Ethics in research generally aim to protect the research participants and other interested parties to the research, including the researcher, as well as helping to maintain professional research standards, promote public confidence in research, and minimize legal risk (2009,p.60).

In that perspective, whilst conducting educational researches, Cohen et al, (2000, p.49) argued that ethical issues encountered in educational research can be extremely complex and subtle and can frequently place researchers in moral predicaments which may appear quiet unresolvable. One such dilemma is the challenge for researchers to strike a balance between the demand placed on them as professionals to pursue the truth and their subject's rights and values potentially threatened by the research

(Cohen, et al, 2000, p.49). For this reason to protect the research participants from harm their consents were sought and confidentiality agreements were obtained (See appendix A and B). Ethical issues may stem from the kinds of problems investigated, methods used to obtain data and the validity and reliability of the data (Cohen, et al, 2000, p.49). Theoretically each stage in the research is a potential source of ethical problem. It may arise from the nature of the research itself, for instance ethnic difference in intelligence, context of the research, procedures to be adopted, methods of data collection, nature of participants, types of data collected and what is to be done with the data (that is publishing) (Cohen, et al, 2000, p49). Berg (2009: p.60) highlight the extent of ethical issues around harm, consent, privacy, and the confidentiality of data. Prior to the research field work, and in compliance with Massey University's research ethics requirements, an in-house ethics application was lodged with the Institute for Development Studies, within the School of People, Environment and Planning. This was followed by a discussion with my supervisors Associate Professor Glenn Banks, Dr. Maria Borovnik and Dr. Rochelle Stewart Withers for a preliminary ethical issue discussion. Then a formal ethical application was lodged with the Massey University Human Ethics Committee for their consideration and a low risk notification approval was recorded.

In this study, ethics was an important component to seek consent from various respondents. This is because interviews concern interpersonal interaction and produce information about human condition (Cohen, et al, 2000, p.292). I made myself aware of the three 'Cs' informed "consent, confidentiality, and the consequences" of the interviews noted by Kvale, (1996) as cited by Cohen, et al, 2000, p.292). Participant's informed consent was obtained by way of explaining the reason for research and what participants would be asked. Participants were then asked to sign consent form as a sign of approval (See Appendix B and C). PNG has a diverse cultural inheritance and ethnicity is fluid in which there is a daily occurrence of resentments of which it was appropriate to be mindful. For this case, researches within mining environments are often complex and sensitive. I was aware of controversial issues such as compensation and environmental issues and law and order problems around mining communities that often led to higher expectations and clear indication or exposure of frustration by the local communities. As a Papua New Guinean student, I was also aware of cultural and gender sensitivity. Importantly how information will be protected, and consent of research participants will be sought that will include seeking informed consents of

participants and also how to deal with ethical issues dealing with female participants. Other areas discussed include the potential harm the research will cause to the participants but was seen to be minimal. The research methods and ethical process seemed adequate but the only issue is presenting evidence of oral consents for participants who are not able to provide such informed consents and who refuse to sign forms or are unable to sign informed consent forms. Finally the next section provides the summary of this chapter.

4.9 Summary

This chapter outlines and discussed the approaches and method undertaken to conduct this study. I highlighted the theoretical framework used (SLA) and how it blends together with the qualitative methods of research used for this study. The chapter then identified the research site and provided the reasons behind the selection of research participants. The chapter then discussed the data collection methods and the procedures followed in analyzing the research data. The chapter also highlighted the need for research data to be of credible, valid and reliable which was an important aspect in research. Given the sensitivity of the mining industry and the level of attention it attracts from diverse stakeholders, I was mindful of the reasons when conducting my field work. I ensured that research participants were able to trust me and understand the reason behind this research and the processes in order to engage in the exchange of information. Finally, ethical consideration were discussed and highlighted which was an important component of this research. This enabled me to be conscious of Massey University research code of ethics principles and also having in mind the wider population who would benefit from the research as well. Therefore, evaluation of these findings was based on the research at Porgera during the month of June 2010. The next chapter will discuss the findings of this research.

CHAPTER FIVE: RESEARCH FINDINGS

Any activity or investment in education is unlike any other development intervention requires the participation of all stakeholders to enable a better future for the children
(Ken Gannicott, 1990, p.45)

5.1. Introduction

With the view in line with Gannicott above, this chapter presents the data collected from the field research undertaken within six weeks whilst at Porgera gold mine. The study focused mainly on educational institutions located around the vicinity of the mine (Porgera urban³⁵) and primarily on Porgera Landowners. As mentioned in the previous chapter, a qualitative method of semi-structured interviews was employed and a digital voice recorder was used to record respondents' feedback. Since most interviewees responded in Tok Pisin³⁶, I had to translate the data into English and then set out the key themes that evolved from the research. The themes were then categorised into three major sections (educational inputs, educational participation and educational outputs), each with sub sections.

The introductory section provides background information on the research participants. Although their consent was sought prior to the interviews, codes are used in this report to protect the privacy of individuals and institutions. The first section examines the educational inputs into educational institutions and the support systems within the education sector. Secondly, the section looks at participation and stakeholder³⁷ partnerships within the education sector. Thirdly, the chapter covers educational outcomes looking at the progress and perceptions of Porgerans in light of education over the years the mine has produced gold. The final section provides the summary of the research findings.

³⁵ Refers to communities within the vicinity of the open pit that includes Porgera and Paiam station

³⁶ The National language of PNG that is widely spoken by a majority of the population.

³⁷ According to the Porgera Mine Closure Consultation Document (2002), stakeholders include various local arms of government (District Administration, Porgera and Paiella LLGs, ward councilors and staff etc), the SML landowners, other Porgera lease landowners, non-lease landowners, and local business.

5.2. Background of the Participants

Educational institutions³⁸ involve a range of key stakeholders who play exceedingly important roles within the system. As highlighted in chapter two, mining projects often occur in remote and isolated places where access to basic government services is often minimal. Therefore, provision for, and improvements in the delivery of goods and services are needed. Gannicott & Throsby (1992, p.237) noted that “strategies developed to improve educational sector qualities will fail or be less effective if important complementarities are overlooked. Any investment in education should be planned and delivered as a package rather than as one-off projects. This requires collaborative inputs from stakeholders to enable an effective and functional educational system. The main stakeholders directly involved within the Porgera urban educational system includes: parents, teachers, school board chairpersons, community members, Porgera Development Authority (PDA)³⁹, (see Bonnell,1999, p.76), Porgera Joint Venture (PJV)⁴⁰, Government (the three tiers), Churches, Porgera District Women’s Association (PDWA), Porgera Landowners Youths Association (PLYA), and the Porgera Landowners Association (PLA). The key features of each research participants are detailed in chapter four.

Porgera is a mining community town and is different from other towns and communities elsewhere. The status of Porgera’s educational sector was documented by Bonnell and others (see chapter three) in which education was accorded a very low status when the mine began production in 1990. One of the key mine benefits negotiated was the need to enable Porgerans greater access to educational opportunities utilising mining developmental benefits and opportunities. This study examines whether, after twenty years of gold production, there have been any improvements in the educational statuses of local Porgerans including improvements in educational infrastructures and facilities. The fieldwork further explored the level of

³⁸ Educational institutions are made up of elementary, primary, community, upper primary, high school, vocational centre, international school, and CODE and DODL centers

³⁹ Porgera Development Authority (PDA) was formed in 1989 as a 4th level of government between the provincial government and the two LLGs in Porgera district.

⁴⁰ Porgera Joint Venture (PJV) comprises of Barrick, Enga Minerals Limited and National Government of PNG.

support given to educational institutions within Porgera, assessing the working relationship between stakeholders in their efforts towards enhancing educational outcomes.

5.2.1. Recap on Research Questions.

The research findings were centred on the key research questions which have already being outlined in chapter one. Themes that emerged from the interview transcriptions were categorised according to the main headings and sub heading detailing in the findings. Just to recap here, key questions asked include:

- What level of support is given to schools by stakeholders (parents, PDA, PJV, LOA, Government (Local, Provincial and National) in Porgera?
- What support systems are in place that enables the strengthening of educational institutions within Porgera for sustainability?
- What is the stakeholders' relationship like in terms of participation and partnership like within the education sector within Porgera Mine Landowners communities?
- What were the educational outcomes achieved by key stakeholders since the mine began production in comparison to educational developments prior to the mine?

The field data was framed around the key questions and categorised under three main sections in which the following provides the responses of the participants.

5.3. Educational Inputs

Educational institutions within Porgera require support from key stakeholders. The various forms of support given by various stakeholders to educational institutions enabled the education system to function. The supports given are referred to as 'educational inputs' to sustain, maintain and enhance educational operations and growth. The extent of support may differ

depending on whether it was from the government, PJV, PDA or the communities. Educational inputs may include support in terms of, for instance, infrastructure and facilities support, funding, emotional, and moral support from stakeholders etc. The support required is directly targeted at schools, teachers to create a sustainable education system in preparation for mine closure and beyond as considered critical, hence looking at the support systems and process in place.

5.3.1. Institutional Support Systems and Processes

In order to get an understanding on the kind of support given to institutions, key informants who comprise of school Principals, Head Masters, Board Chairpersons and district educational representatives were interviewed. Headmasters spoke openly about the type of support they receive from the major stakeholders such as Porgera Joint Venture (PJV), Porgera Development Authority (PDA)⁴¹, Porgera Landowners Association (PLA), the three tiers of government (National, Provincial and Local Level Government Council (LLGs), parents and the community in general. Principals and Headmasters are referred to as Educational Institutions Administrators (EIA⁴²) in this study. Each EIA was asked regarding the type of support they get from different key stakeholders and how often those supports were received. The support could either be number of visits, funding, infrastructure and facilities support, provision of equipment and learning aids, importantly assessing their attitudes towards the provision of such supports given towards the schools.

Firstly, when asked about the attitude and level of support received from the parents and the community, the nine EIAs interviewed all agreed that very little or no support was forthcoming from the landowner parents as opposed to non-Porgeran parents. Support rendered to the schools from parents may

⁴¹ Porgera Development Authority – According to Bonnell (1999) was initially established in 1989 to serve as the 4th level of government between the two LLGs and the Provincial Government to manage the affairs of the district by managing the benefits from the mine. It was created to overcome bureaucratic constraints of LLGs in order to get things done and significantly to coordinate infrastructure developments (Banks and Bonnell, 1996).

⁴² EIA – this term is used as umbrella term to cover headmasters, principals and managers of educational institutions

include attending school meetings, school work programmes, paying fees on time and following up on their children's school reports. However, lack of attendance and involvements in the above activities seems to be Porgeran parent's common attitude and behaviour as the following quotes from Headmasters and Principals illustrate,

These people here, I think their head is not right. If you talk about work, only less than 10 or 15 attend to work or school meetings for a school that has 300 plus students. When parents don't turn up, we charge them K50⁴³ project fee, but they are still reluctant to pay these fees (EIA1)

Parents do not show interest in education because they do not have a good understanding about education themselves. We keep telling them in forums and school meetings that Porgera will not be like this forever. When the gold is gone, they will depend on their kids if they are well educated but instead, they run after money and their kids also follow them...some have understood and are slowly changing, not all are ignorant (EIA2).

Headmaster stated that:

Only few parents who have education at heart for their children are committed but most do not. I still need parental support to rebuild this school destroyed by tribal fighting but so far it has been very poor. It maybe Porgeran's attitude, I don't know but I need them to run this school. (EIA3)

As long as Porgeran's paid school fees and give lunch money whether its K50 or K100, to their kids, they don't take responsibility of what happens at school for their children's education (EIA4).

These responses according to the teachers show the attitude of most Porgeran parents in terms of their understanding and the level of support they provide to educational institutions. Based on the research, the feedback illustrates an

⁴³ K denotes PNGs national currency.

obvious lack of interest on the part of landowner parents in supporting their children's education. Some of the EIAs stated that the reason that landowner parent's turn away from supporting their children and the schools was due to ignorance, lack of responsibility or either blunt obsession for money. However, there were few individuals and parents within the community that did support teachers, students and the schools. It was found that parents who supported the schools well were non Porgerans who are migrants, staff of PJV or others living and working in Porgera.

In contrast, when asked about the level of support provided to educational institutions by PDA, mixed reactions were revealed. Most respondents said, PDA, at first was a vibrant organization that served its purposes well. However, the research findings revealed that it was not only concentrating its resources in Porgera but also spreading them within Enga and other places along the highlands highway. This view was expressed by many of the respondents. EIAs views were based mainly from their own years of experience and from what they have seen whilst serving in their current positions. Fifty percent of the EIAs said they have not received any support since their appointments, although they heard stories that PDA provided assistance in the past. About forty percent said that they did get some assistance but these were all one-off cases and happened some years back. Another ten percent said, that they were unsure however, some said that promises were made that were never fulfilled although follow up letters were written time and time again. The following examples highlight some of the varying responses from Headmasters and Principals:

Nil! We have not had any support from PDA. The current chairman made some commitments in 2007 to give us a staff house but to date we have not received any assistance from PDA (EIA1).

I've been here for the last 6 years. I heard they did provide assistance previously but over the last few years, there hasn't been any support. We have been writing so many letters but have not received any response. They keep saying PJV did not give us any money and little we have is put to law and order and they give all sorts of excuses. In

2006 when I was the deputy they gave two staff houses and said to build an assembly hall but they didn't build it. When I came in nothing more was happening (EAI3).

This school was set up by PDA but since its establishment, there was little ongoing systematic support. This is a mining school; we should be well established with updated facilities. But there is no dialogue between PDA and the school because of ongoing frustrations and different change of management (EIA5)

The classrooms you see there are through the Tax Credit Scheme (TCS). Apart from that nothing else and we have been tirelessly requesting for assistance and nothing seems to be working right for us, I just feel like giving up (EIA8).

These responses show that although there was some form of assistance given to the schools over the last few years, they were all on an ad hoc basis. Once assistance was rendered, there was no follow up, monitoring or further consultation between them (PDA) and the schools. The research findings further revealed that most EIAs and local Porgerans expected greater opportunities for dialogue, support and commitment on a regular basis as long as the mine is producing gold. The EIAs views were similar to the sentiment expressed by these following local elite,

As long as there is smoke gushing from the mill, we expect development and more development. This is our gold, not yours (LOY3)

However, according to PDA, support was given to schools in various forms including individual scholarships and infrastructure support. As stressed by a key person;

We cannot continue to burn money to projects when landowners cannot look after the facilities. We put up buildings and they are burnt down within months. We have now shifted our focus to law and order because that is where the problem is at the moment (MKS7).

The research revealed that the landowners need to organize themselves to harness mine benefits. There are no systematic and coordinated efforts too on the part of key stakeholders. Furthermore, Porgeran parents themselves are lack to understand the value of education that would help them in the long run.

Another theme that emerged from the research was the lack of support and low motivation levels amongst teachers. Many initially moved to Porgera district to teach because it hosts a world class mine. Their expectations were to live and teach in schools that have better classrooms, equipped with good learning facilities such as desks, computers, duplicating machines, and access to good staff accommodation with electricity and sanitation facilities, and opportunities for up-skilling. However, many teachers faced disappointments as pointed out by one of the Headmasters,

Many of us were shocked at the first instance when we came but we are still teaching her (EIA1).

When asked; *what kind of the support they were getting from PJV, PDA or the parents were?* Many hesitated and said nothing as illustrated by the following responses from the Headmasters;

I was teaching in Lae but got a call this year so came thinking that a call from a school within a mining town is a privilege but when I came I was shocked because there was hardly anything here, even for teaching (EIA1)

Another Principal stressed that:

They pay us mining allowance⁴⁴ (paid by the government) which we know of but many of our staff do not have access to those allowances and maybe free electricity as our incentive or I don't know but nothing really from the mine or PDA. I have been teaching for six years here and haven't been paid my mining allowances (EIA2).

⁴⁴ Mining Allowances are paid to teachers every year by the government as an inducement allowance for teachers working in mining communities. It is often been claimed from the National Department of Education Office in Port Moresby.

Another added that; *Nonpayment of mining allowance only adds more pain and makes our lives very difficult and suffering us here with our families. This is a place where you survive on money (EIA7).*

Another area mentioned by one of the Principals was the need for teachers to be up-skilled in terms of their teaching experiences and qualifications.

Times are changing and the National Department of Education (NDoE) is initiating a lot of reforms in the way we teach. Most of the teachers are certificate holders and cannot deliver quality material to students especially when we have upper primary students from year six to year eight. We need qualified teachers (EIA4).

What will we gain if we finish from teaching at this school? It would be great if they include us in in-house-trainings. Teachers know they can't get anything out from teaching in Porgera because there is nothing attractive for them sweating out your guards in an expensive place. Teachers are working in isolation and that has been a problem. (EIA4).

One Headmaster stressed the hardship that he endures in trying to rebuild the school recently burnt down through a tribal fight, right within the heart of the mine.

As an implementer I see that PJV is not doing enough for local people and I am not getting the assistance I would expect from a mining company. I just came in and am struggling to rebuild this skeleton school doing what I could (EIA3).

As shown by the responses, most of the Headmasters who have been teaching in Porgera have not received their mining allowances. It is paid from the education office in Port Moresby⁴⁵ and for them to travel to claim them in Port Moresby is the hard because the cost of travel from Porgera to Port Moresby will be the same as the amount they will claim.

⁴⁵ Port Moresby – is the capital of PNG. The only way to reach Port Moresby from other highlands provinces is by air and sea.

Teachers have not been motivated and supported adequately within Porgera to live and work.

5.3.2. Infrastructure and Educational Facilities

The poor state of the educational infrastructure in Porgera reflects the state and condition of education and educational institutions. According to observations made during the research from school visits, there was need for improvements that were obvious. For instance, the sight of having bush material buildings, overcrowding, lack of desks and stationeries, kids sitting on desks made from rough timbers with grasses spread over the floors as those found in pigs sty. These were hard realities observed on the ground that seem to contradict seemingly colourful reports often written on how much the mine has contributed in transforming communities through sustainable development projects. According to the research, out of ten schools visited and interviewed, only one school had enough classrooms, but this particular school lacks staff accommodation. Although most schools have enough classrooms, they still need good furniture such as chairs and tables, and white/black boards to enhance students' learning. All the EIAs agreed that there was the need to have access to office machines and equipment like computers and duplicators to help teachers prepare lessons and develop teaching resources thus enabling them to improve their teaching. The research further showed that there was a need for further development of additional infrastructure and facilities to accommodate the increase in enrolments offset by the close down of other schools in the area, and also the upgrade and intake of upper primary students for year 7 and 8 classes. The following responses from Headmasters indicate:

You can see there are no facilities or supplies. We only operate out of government subsidies. I diverted the subsidy into building two staff houses and a classroom since we have not been getting any good support from the community. It's really a hard life when staff doesn't get any good support (EIA12).

Look at me, I feel like giving up and going away. This school is located right in the heart of the SML⁴⁶ area and yet we don't have the electricity, only one tank for 300 students. I am sitting in an empty office with no power and peering out the window watching the smoke gushing from the mill. Isn't that crazy? (EIA8).

This school doesn't have the infrastructure and the means to expand, although we had plans for expansion. We are in a mining town, we should have a modern science lab, basic technology building, well equipped library or computer labs but nothing of that sort yet (EIA4).

The above views demonstrate that while most of the schools have plans and visions to develop and improve these have been hindered by a lack of resources to expand, improve or maintain the existing infrastructures and facilities. This was clearly shown by the emotional expressions shown by the EIAs when expressing the need for such assistance. All EIAs agreed that there was no systematic way of accessing assistance and their only voice was through letters of requests to key stakeholders. Other major issues highlighted by Principals include: poor staff housing, lack of facilities, lack of maintenance, poor fencing, low standard of sanitation, and high student absenteeism. Another problem is the pressure placed on teachers and facilities resulting from an influx of students from schools that has been closed. This makes teachers' job more difficult as highlighted by one of the Headmasters who expressed that:

People elsewhere have the perception that schools in Porgera are well established. I should sleep in a good house and teaching in a well designed and constructed classroom with good whiteboard and computers. Better still computers should be good reflections of school in the vicinity of a world class mine but that's only a wish (EIA3).

⁴⁶ An area allocated to an entity for the extraction and/or processing of minerals, or ancillary activities, for a period not exceeding 40 years.

However, when asked about Porgerans, Principals and local youths views on teachers' performance and commitments, mixed feelings were expressed as the following responses illustrate.

Although most of the schools have been burnt down during tribal fights, sometimes teachers don't turn up on time to teach. Students have been taught 3 days a week. What can you learn from 3 days a week? (LOE1).

I think teachers are mostly here for spin-off benefits to earn extra money. I cannot blame them because they are living and teaching in an expensive place which compels them to do so (EIA4).

There aren't any incentives and we are not really attracting quality teachers. It's a shame many teachers came and left already (LOP2).

The responses above portray the hard realities faced by teachers within Porgera who are not given enough support, although mining allowance are said to be paid. Lack of facilities and support has drastically hindered their work and performance. It is however; also evident that due to a lack of incentives and poor remuneration, teachers use the opportunity to make extra income using the school facilities as the research revealed. The onus therefore is on the local leaders and institutional authorities to look into this issue and create an environment that is conducive for teachers to enjoy their work and give their best to improve education within the valley. As confirmed by Gannicott & Throsby (1992, p.233), the "quality of teachers must be improved" given the difficulties they have experienced relating to distance, terrain, and isolation from basic services.

5.3.3. Educational Subsidies and Trust Funds

The main source of funding that meet the operational costs of running schools comes from school fees and subsidies. In addition school fee

subsidies are allocated by the government according to the enrolment data submitted each year. The research data shows that funding from the government and the SML Children's Trust⁴⁷ fees for landowner children is often not released on time. Such untimely payment places a huge burden on the EIAs who find it difficult to run schools throughout the first half of each school year. In most cases, local Porgeran parents are often reluctant to pay school and project fees on time as demonstrated by the following responses from parents and Principals:

The students are very eager to learn but the parents are very reluctant to pay for their own children's school fees. Parents elsewhere like Laiagam pay their school fees well on time but in Porgera this does not happen (EIA6).

I think many parents are relying heavily on the SML Children's Trust. When SML Trust doesn't pay up on time, we have no choice but to remove students. Some parents seem to be ignorant and seem to have a do not care attitude for the future of their children (LOP3).

Although PLA pay school fees for SML children but their problem is they don't release the fees on time. We are still waiting for this year's SML fees and its now June and we are still waiting. Some parents gave up and paid out of their own pockets (EIA2).

Based on the above responses, much needed funds were often not released on time for schools to start their school year which are further compelled by delays in the payment of fees by parent. These delays place huge pressure on school administrators who had to use whatever little resources they could find within their means to start the school year. According to the research findings, it appears that systematic and coordinated approach in neither paying these fees, nor monitoring of fees paid against students name to see which are genuine Porgerans and who are not are lacking. For this reason, many parents expressed dissatisfaction with how the SML children's Trust

⁴⁷ The SML Children's Trust Fund- Is a fund established under the conditions of the Porgera forum agreements, where 10% of the total mining royalties are paid to a Trust Fund for the children of the SML landowners (Bonnelle, 1999, p.59).

has been operating. Although the Trust was set up to meet the educational expenses for children from the seven clans of the SML, the research revealed that the funds are only benefiting a few selected people whilst many children have been missing out as the following responses suggest;

To be precise, there is mismanagement in that Trust and a lot of infighting has been going on now. Most SML children are still here without having access to further education. Only 40% of the SML children are benefiting and 60% are uneducated (LOE2).

Only the kids of big people go overseas and ordinary landowners kids are sent to schools here. It's unfair but they have the power over money. I look after pigs and raise money to pay my children's fees and am sure others do the same too for our children's education. I don't depend on the SML although we have heaps of money here but most of our kids are not attending schools (LOP3).

My first child is a girl and she completed her studies from Commercial Training College. [Did you pay for her fees?] Yes, I paid all fees although I am from the SML and a local elder. [Why do you pay when you know you have SML trust fund?] I am employed so had to pay for my own children's fee. I don't wait for the SML because they are too slow and do not respond well; sometimes they give preference to their in-laws and other non-genuine SML children (LOP5).

Most of our children are out of school although we have so much money sitting with the Porgera children's trust fund but our children are not utilizing those privileges (LOP2).

We are also worried about the tribal fights that destroy schools facilities and interrupt learning and schooling years. That makes things even worse for our children. I have no land now; I don't know where my children will live and what he will eat, drink or sleep or where they will get firewood tomorrow. If we are not too careful, we

are heading for a generation of landless Porgerans and if we don't prepare for them.....we are facing a death trap (LOP4).

The responses indicate that despite the establishment of the SML Children's Trust the institution has been plagued by various issues. The research data showed that most SML parents are benefiting and have been paying their own children's fees and their children's seem to be missing out. In addition, there is a lack of proper guidelines, no sign of proper records and data kept on who is benefiting and how many have benefited. How many have been pushed through the fund that has attained higher qualifications. According to the research findings, it seems the fund does not have any long-term plans in place on how it will continue to fund Porgerans after the mine has closed. Many of those interviewed, expressed the opinion that the fund will not be able to sustain itself after mine closure if it continues to operate the way it is currently operating.

5.4. Educational Participation and Partnership

“Meaningful participation for people is potentially enabled by educational experiences. This potential ,especially in relation to schooling and institutions is made actual only when the will is there for this to occur, the institutional frames and experiences are set out and everybody is given a chance to be part of these”
(Avalos,1993,p.1).

Participation of key stakeholders is essential in developing and sustaining educational developments. This is critical in areas such as Porgera who are open to the wider world where every development is monitored by various stakeholders. Unlike other communities, Porgera has important key stakeholders who contribute in one way or another towards its development. Educational development is also affected by the operations of these key stakeholders. The niche that hold them together for long term sustainable development approaches and programmes work through participation an formal partnership. In view of the level the sustainability and sustenance of educational developments within Porgera, the following areas were covered.

5.4.1. Policies and Plan

Large scale developments taking place in Porgera require a number of operational and development plans to be in place. One of the my interests during field work was to see if there was any plan in place to guide and coordinate development efforts towards helping the local communities especially for the education sector. When asked if there were any district developments plans, education plans or sustainable developments plans, interestingly, mixed responses were received as the responses from organizational leaders and Principals suggest:

What we lack here is proper coordination, will and consultation. We have heaps of money here but we are not planning properly and using them according to projects and proper plan (MKS4).

We just had a district cluster planning for schools in Porgera to use a uniform plan so that each can take ownership of that plan. Locally devised plans help us to know exactly how we can do things with resources we have. I am not too fussy about the government's plan from 2020 to 2050, it is the government's way to get donor funding. They are not designed for us people on the ground. Out here we need plans that will work with timely budget and allocation of resources such as textbooks and specialist teachers and their resource (EIA2).

Yes, we have the education plan through the district five year development plans. Based on that, PDA and the local MP⁴⁸ work together to look at education infrastructures. Development was defined in the development plan but to date; no one has really worked in line with the district plans. People are really operating outside of the plans and we have a problem here (MKS9).

Another leader noted that,

It took almost 2 and half years to develop the 5 year district development plan which was carefully done bottom up. It's easier to develop the plan but much

⁴⁸ Member of Parliament – at the time of research Honourable Philip Kikala was the member for Porgera Lagaip Open electorate.

harder to implement the plan. It's not a matter of implementing the whole plan but it's a matter of what have we've got and what we can give and how can we use those limited resources to achieve things which we can. But they have been left too long and I believe they have been left nosier in the district office and so they can't see their way through. But I think that makes the difference if you have a leader who really knows how to go about implementing the plan (MKS8).

Based on the research findings, the district lacked proper plans that could have provided a clear direction to coordinate efforts and resources. According to the respondents, prior to the opening of the mine and since then, nobody took up the responsibility to address the problems identified within the education sector. This research further revealed that what stakeholders lack is cooperation, commitment and a sound working relationship amongst the stakeholders to develop and implement plans which could contribute to improving and sustaining educational institutions within the valley before the mine closes. In addition, many feel that such support should be guided by the Five year district education development plan. This does not only refer to financial assistance but also includes technical and moral support through other means such as workshops, short-term trainings, regular meetings aimed at promoting awareness of issues affecting education. One way of achieving that is the provision of timely responses.

5.4.2. Educational Responsiveness

Timely response to meeting educational needs and demands is necessary. This is also important in building relationship and maintaining dialogue and communication among and between stakeholders. The need for improving infrastructure and keeping the schools running compelled the EIAs and board chairmen placing numerous requests to PDA and PJV for assistance. All EIAs admitted seeking assistance for their schools and even produced copies of letters of requests they have been writing to various organisations for assistance over the years. As illustrated by the following views from Headmasters and organizational leaders:

We have been writing numerous letters to Barrick and PDA the whole of 2008 and 2009 but have been receiving negative and most times no response. We requested for electricity because we have people serving the community living here, and too we want to take in grade 7 and 8 classes which will definitely need electricity to put computers and duplicating machines but we no response came so we just left it at that (EIA4)

Since the establishment of this school, there was little but not ongoing support. We should have the best facilities here but I think there is no dialogue between PDA, PJV and the school maybe due to ongoing frustrations and change of management. As such I see that there is little ongoing support although I have been asking for help (EIA5).

I don't know of the past, but I think it has all been an ad hoc approach. I don't think there has been a planned process which guides and directs how we provide assistance through Tax Credit Scheme⁴⁹ and PDA projects. The only plan I've ever seen is the five year district plan which we are now working on that within my section on how we could operate with the communities whether it be about education, agriculture or whatever...sadly it has been ad hoc...so you get a building here and a building there but never work on what's our long term strategy to strengthen education in the valley were (MKS7).

These responses show that proper procedures or planned process were not in place where decisions can be made, and resources can be allocated to cater for such requests. This resulted in uncoordinated and unplanned coordination of assistances. Most current EIAs learnt of how the previous operator of the mine (Placer Dome) set the precedence of attending to requests, therefore think that Barrick could respond in a similar manner. The only form of

⁴⁹ This scheme was devised by PJV to increase its public relations in order to secure road access and also to provide assistance to areas outside of Porgera.

funding to schools according to the research data is from fees paid from the SML Children's Trust for landowner children. However, PJV has been providing scholarships and other infrastructure assistance not only within but outside of Porgera as well. Decisions made and assistance provided was done on an ad hoc basis. According to the interviewees, many still think that the previous operator Placer Dome⁵⁰ did more good than the current mine operator (Barrick) as the following responses illustrate. In response to a question regarding company support a senior district officer district explains that:

Not anymore but during Placer Dome days, yes we did get support in terms of logistics to visit schools, funding for in-service, and curriculum when we requested. But with Barrick⁵¹, getting such assistance is becoming hard now. Those I think were the good days where we had few white men around where they invite me over to sit with them and talk about education issues and what they could do to help (MKS9).

We don't get any assistance, only books but that was through Rotary Australia. We send numerous letters of requests but have not received any response over the years (EIA1).

Furthermore, another Principal stated that;

Nothing, when we ask for assistance, we are always referred to PDA and the provincial government (EIA5).

In addition, another Headmaster described the type of support they got from PJV;

The classrooms were built through Tax Credit Scheme (TCS) that was one-off, no other ongoing supports were given although letters of requests are written and submitted every now and then (EIA8).

From the local perspective, a local Porgeran youth stated that:

One thing that frustrates me is that when we approach the company for help, they say it's the government's responsibility, when we ask the government, they are in Waigani. We are caught in between and do not know how and where to seek help. I have

⁵⁰ Placer Dome – A Canadian company that was previously operating the Porgera Mine.

⁵¹ Barrick – A Canadian company who has 95% stake in the Porgera Gold Mine

dreams but here I am living in the center of the mine looking lost and hopeless (LOY2).

Only one institution was able to admit receiving a favorable one-off assistance from the company in recent months whilst previous records were not on file.

Just early this year PJV gave us few things including two cheques of K5000 which is two days ago K3456 for painting this building, safety gears and other equipment. They even came to demonstrate firefighting course for my students and provided video tapes. We are working very well with PJV over the few months and are sure this will continue (EIA5).

Most EIAs hold the same views that PJV was slow in responding effectively to requests for assistance. Respondents highlight that there is no planned and systematic approach for providing or responding to such requests. It is also evident that there is a lack of routine inspections in schools either from PJV, PDA, PLA or even parents. When asked about the kind of support schools get from the three layers of government, all of the EIAs stated that, they are not aware of any support from the LLGs.⁵² However the National and Provincial Government provides subsidies, and support with curriculum development and in-service trainings. For instance, the Enga Provincial Government provided computers for Porgera Vocational school but again that was just one off incident. Some argued that:

We only got assistance through politics...if I know the local Member of Parliament; I may get assistance directly whilst other schools within the valley will miss out. It's also the same at the Provincial level (EIA3).

5.4.3. Leadership and Direction

Local leadership is one factor that will drive and direct the flow of development within the community. One of the key issues highlighted by the respondents when interviewed about participation and partnership, many

⁵² Porgera Laigaip Open electorate has two sub districts, Laigam and Porgera.

agreed that leadership has been a major hindrance to development within the Porgera valley. From the local front, in terms of support from PLA, all EIAs admitted that they are not aware of any form of support from the PLA⁵³ either direct or indirect apart from the SML Trust fee payments made. Specifically Headmasters point out that no visits, or dialogue has taken place between them and PLA to discuss educational issues. As the following responses from Principals and local elites illustrate;

Nothing at all! I have written so many letters and received no responses so have given up (EIA3).

Similarly another Principal point out that;

No, we don't get any help. They don't know me and I don't know them too (EAI6).

There is a failed leadership in hierarchy here. We called for meetings but it has fallen on deaf ears. We should put all our differences aside and when it comes to communal benefits. We have the money and power and should do something but people who have those are just too ignorant. We are not giving enough support to our schools because local leadership has been weak (LOE2).

Commenting on the attitude of local leaders, a female parent said that:

We don't talk to our leaders...maybe us ladies we don't...maybe ask the men...when you want to talk about such things, they will not come but will avoid and move around. SML landowners turn up only when they want to distribute or collect cheques but not any ordinary meeting like this. Everyone operate on their own (LOP2).

Based on the various responses above, it is evident that many people in the Porgera community have lost faith in their local leaders. However, there are few individuals who want to stand up but without having the power and money, they cannot do much. The research reveals that key managers and leaders do not have a good knowledge of each other, and lack the ability to communicate and dialogue effectively. Based on the

⁵³ Porgera Landowners Association is made up of all the clans around the mine on which mining special mining leases were granted.

respondents' voices what seems to be lacking is poor leadership from the local level which further contributes to low morale amongst key stakeholders especially those that are directly involved in educational initiatives in Porgera. Poor leadership also impacts negatively on the level of financial support received by the educational sector. Furthermore, the research data reveals, especially from the discussion with the EIAs, local youths, local elites and parents that local leadership has been one of the determining factors that has been a concern.

These views demonstrate that leadership at every level is weak and that those in leadership positions are less enthusiastic in supporting the education sector. This was clearly shown by the research participants' openness in speaking about the issues. As pointed out by the respondents nobody wants to assume a leadership role that could ensure community ownership is in place of the educational institutions. Secondly, most EIAs reported that there is a lack of vision and mission within the local leadership hierarchy in attracting and promoting full stakeholder participation that could foster partnerships towards supporting the education sector. The problem of accountability was also another factor highlighted from the local leadership perspective at every level which led to the confusion among the community in trying to understand the roles and responsibilities of their stakeholders.

5.4.4. Ownership and Responsibilities.

To approach educational development, educational planners and managers need to translate rhetoric of participation into practical reality of more participatory, collaborative processes at all levels of the system (Shaeffer, 1993, p.10).

The research findings so far highlighted that although there are adequate resources in terms of funding, expertise, time and appropriate plans, nobody seems to care, to take ownership, and to coordinate and improve the education system within Porgera. The issues identified in the plans were similar and on-going issues highlighted in previous studies by Mascord (1988), Bonnell (1999), and Banks (1993) amongst others who carried out research on socio-economic impacts in Porgera. In contrast, organizational

leaders noted that it was due to lack of one taking on their responsibility highlighting that:

I really don't know whose job it is really. I've been writing letters to the district administrator asking him to direct the district education officer to develop a framework to coordinate and invite stakeholders. We need a leader and that leader supposed to be the district education officer. I have been writing to the current and former district administrators that education system within the district needs an overhaul. We are continuously spending millions of kina on building classrooms but when people do not appreciate our efforts and their kids are not attending schools, we can't continuously fund and burn money. Someone needs to talk and that is the education department (MKS6)

I feel like resigning and go campaign for a leader who will give education a key development priority. I feel sorry for the kids, these are our people and our own, this is our future and nobody cares (EIA6).

Based on the above findings, the roles and responsibilities of each stakeholder remain confusing and unclear as the research findings indicate. There is confusion amongst key stakeholders about who was responsible for organizing and coordinating efforts towards improving the education sector. These led misunderstandings within the community in trying to understand the purpose and function of each organization that exist within the valley, for instance as illustrated by the following responses leaders within organizational and Principals,

The government is thinking that schools within the mine are the responsibilities of the mine and the mine is also thinking that it's the state responsibilities (EIA2).

Depends on how we see the schools...if it is a government school, then it's the government's responsibility. At the moment, there is no school that is directly attached to the mine....if it was that

would be the international school but that is still in limbo because there is no concrete agreement in place where PJV is the owner or responsible for that school...so we really can't blame anybody but I would say education system plus the leaders because PDA directly supposed to be paying for all the educational maintenance and infrastructures development and one of them is school (MKS2).

I think they should change the name Porgera development Authority to something else. Maybe call it PNG development authority because the name doesn't seem to develop Porgera but other parts of PNG while we are missing out (MKS2).

These statements suggest that many local Porgerans' and EIAs still lack an understanding of the purpose and roles of each organization that exist within Porgera. This leads to misunderstanding amongst the people about who is responsible for what. Many of the respondents still think that PJV need to provide and meet development needs of Porgera. On the contrary PJV hold the perception that PDA and the state are responsible to address development needs including education. Nevertheless, local people are still adamant that PJV should still take responsibility for the irreparable damage to their land and their environments.

5.4.5. Working Relationship

The demand for quality education by students has placed enormous pressure on the EIAs. In light of the challenges faced by teachers, these issues can be identified, discussed and addressed by all key stakeholders. However, according to the research, the much needed and constructive working relationship seems to be weak and lagging within the education sector. The key question asked in relation to this was "Has there been any time where key stakeholders involved in the education sector ever meet to discuss educational issues?" The respondents commented that "*this is a very good*

question” and responded as the following quotes by church, organizational leaders and Principals suggest;

No, I am not sure about the previous management but as far as I know anything like that did not occur. Everything seems to be operating on ad hoc basis. There is no coordinated method in terms of how we can do it in a broader perspective (MKS4).

No, the authorities here (PDA, PJV, PLA) should have proper plans which I think they have but am not sure. I am not aware of being invited to any specific meeting to discuss educational issues and how we can address or improve the education system (CL1).

There was one particular meeting that I personally organized and asked if we could overhaul the education system in Porgera and called it ‘education system 2020’ but nobody supported so I gave up. Setting up a school is one thing but continuously nurturing, supporting and improving by ensuring that necessary inputs are provided to keep moving as a functioning education system is another thing (MKS4).

I don’t think we have...but we should be talking about the district education management committee and talk about issues looking at post mining. How much has the mine produced in terms of local professionals and the sustainability of educational institutions (EIA3).

The research data shows that key stakeholders do not have a good working relationship between each other and even within the district. The above responses indicate that, although the need for consultation meetings remain, no one was bold enough to take the lead to organize and bring stakeholders

together to meet, identify, plan, and address educational issues. This was further conceded by mine staff (CPD⁵⁴ Manager- PJV),

There were many meetings held but am not aware of any concerted effort between the different key stakeholders to come together and push things forward in a systematic way. The sustainability issue came about when they thought the mine was going to close so there was a lot of dialogue between stakeholders. Where that was leading and who was taking ownership of education, I had no idea (MKS3)

The research findings show that, although there were numerous meetings, there were no formal consultative meetings held within the district specifically to discuss educational issues involving major key stakeholders. However, meetings held were between one or two stakeholders. For instance, the only time teachers get together is during in-service training for teachers where they come together to plan their programs and refresh themselves through training and other professional development activities. However, meetings or workshops at a higher level involving the key organisations with authorities such as PDA, PJV, PLOA and the district education office did not seem to occur according to the respondents. This infers two issues, firstly, that stakeholders within the district are working in isolation without clear plans or guidelines delivering support in a coordinated and systematic way and secondly, it is evident that no one was taking ownership (both at individual and organizational levels).

5.5. Educational Outcomes

The third section of the research findings looks at the educational outcomes of the Porgera valley since the gold mine production commenced in 1990 and this year marks its 20th year of production (1990-2010). People's views were obtained to see how they see the growth and progress of educational developments within Porgera and what support systems and processes were in place towards enhancing education for Porgerans into the future after mine closure generally. The key question asked

⁵⁴ CPD – Community Planning and Development section is a social development unit of the Community Planning and Environment section of the Community Affairs department of the Porgera Gold Mine.

was “What were the major achievements achieved by key stakeholders since the mine began production in comparison to educational developments prior to the mine?”

Mixed reactions were revealed which was then divided into three time period to see people’s opinion on the progress of education within Porgera (past, present and the future aspirations) beyond the mine.

5.5.1. Past and Current Educational Developments

As the literature review in chapter 2 showed, Porgerans were exposed to cash income from gold prior to the commencement of the Porgera mine through alluvial mining. Much of what has happened was also based on the local Porgerans’ own perceptions on how they viewed the value of education and how much each of them have invested, taken responsibility and supported over the years.

Education in Porgera before the mine was taken seriously by families. After the mine started the education system did not really develop in line with other parts of PNG. People were disturbed by the huge influx of cash payouts (LOE1).

There has been no improvement in the participation of female at all levels of education in Porgera over the last 20 years. PDWA has been trying her best to conduct adult literacy school and is still doing that today in a broader way (LOY2).

You went to Mungalep and saw it yourself. All we have is the TCS funded classroom that was built some years ago, apart from that nothing else. You should have walked in and see the inside of the buildings. I think authorities here like PDA and PJV have not done any assessment of how many local Porgeran children are attending schools and how many have made it to university as yet (CL1)

Based on the above responses and the research data, the above indicate the current state of most of the educational institutions and the educational sector in general. Most of the local landowners stressed that basic educational

infrastructure within Porgera schools have not been up to standards yet. For instance, just one tank for 300 students at Mungalep which is also used by the community around the school. Most schools do not have electricity, no computers, no duplicating machines and we have been operating like schools that do in places where there are no mines. Peoples attitude have not changed yet. All these present interesting challenges about the future of education within Porgera after the mine closes.

5.5.2. Future Educational Projections for Porgera

When asked about what they perceive in terms of the future of education within the valley, the research data revealed that people are pessimistic about the future of the education system. The overwhelming responses by the local leaders and landowners indicated a gloomy outlook on the future of educational institutions as most were in disarray, closed, suspended indefinitely, under resourced, or operating in isolation without substantial concerted efforts and participation from all stakeholders. For example, as the following responses by local leaders and landowners suggest:

The Mine has attracted people from all over to come here and work. If the mine closes, people will go back to their places and who will be interested to come back here. If we have educated people here from Porgera, services will remain, electricity will still flow and the town will still be around. Otherwise Porgera will turn to be another ghost town and that is really my fear (CL2).

In terms of the sustainability of the schools, that's the big question I have? At the moment, all development funds are administered by PDA through their office. After the mine close, I don't think we will exist because money will be a problem (MKS9).

If they continue to fight and disrupt schools, they will regret later. Porgerans don't seem to understand the fact that this mine will close down one day. There's lots of cash flow around here so people are occupied with lots of things. There's little bit of pride that they think

they can still hang around but if they are not making use of the opportunities, they will come to see the reality of what has gone right and wrong. They will realize that education was one of those things they should have pursued and they will regret it at a bigger level and they will begin to look for education (MKS4).

We are not really taking education serious as much as we should and education in the valley is falling apart. That gap is also widened when people do not put resources into the Schools. This creates less opportunity for the continuity of Porgerans education. Nobody is looking at it and almost all schools will close soon, Yuyane is burnt down, Paiela is closed, Porgera primary is partly burnt down, Paiam High Schools has ongoing mismanagement problems. If we go down the same trend, we will never sustain the education sector in Porgera (LOE1).

When the reality dawns on us we will come to our senses but it will be too late....not only education but all aspects of human life. Porgera leaders are less mind full and ignorant and their heads are not working right...it's not functioning and they are dead and can't see or sense the reality of the predicaments that faces us (LOY2)

Many participants see the future and sustainability of educational institutions within Porgera as still uncertain. The education sector appeared to have received mixed reactions among the local people. The few who understand the economics of mining knew that it was only temporary; whilst others seem to have the perception that mining will exist for many years to come. Based on the respondent's views, the community themselves are not organized and able to utilize the opportunity presented by the mine to advance education of their children. Overall, the research findings blend well and are consistent with the views of both Bonnell (1999), and Mascord (1998) who projected on the situation of the education sector. What is found common amongst the current work and the previous studies is that, there are ongoing unresolved educational issues that have yet to be addressed over the years simply because stakeholders have not sat down to take stock and address what has been happening.

Confusion about roles and responsibilities, lack of leadership and the inability of stakeholders to take action and to address and solve the issues continue to pose immense challenges for the community. However, amongst the wider community, there is the fear that Porgera will not be able to sustain itself because those in leadership positions and stakeholders are not serious about the future of education in the valley. While some progress has been made in the education sector in Porgera, the full and intended benefits to the community has been drastically hampered by poor leadership, ad hoc approach to planning, lack of strategic thinking and collaboration among key stakeholders including lack of understanding and organization by the local themselves which sums up key factors that have impacted on progress.

5.6. Summary

This chapter presented the findings of the research undertaken in Porgera which looked at educational developments within Porgera urban landowner communities. A specific focus was placed on the educational inputs through working relationship, attitudes and commitments of stakeholders towards enhancing the sustainability of educational institutions. The research considered factors that contribute towards improving the education sector which included educational inputs, educational participation and educational outcomes. Importantly, highlighting the level of participation, support, and partnership that exist between the stakeholders that support these institutions. However, the main research findings highlight that educational development in Porgera has been hindered severely by: lack of government support in terms of monitoring and enforcing provisions in the landowner agreements in support of the education sector; lack of local leadership and commitment; lack of coordinated and systematic approach in providing educational assistance, including inability and capacity on the part of key stakeholders to engage in collaborative consultation, establishing and maintaining effective networking, and developing productive working relationships.

The research findings further highlighted on-going issues that remained unresolved over the years, pointing out local people's attitudes towards valuing education as an important aspect of sustainable development. Other

issues include lack of community support, lack of motivation amongst teachers, lack of maintenance of educational facilities, including local politics and lack of local leadership. However, contrary to the expectations, the majority of the respondents expressed a high degree of dissatisfaction with progress made over the past twenty years. The current state of affairs presents monumental challenges for the education sector and the Porgera community as a whole unless existing issues are addressed. In the next chapter, I will discuss the findings of the research linking them with the literatures reviewed from chapters two and three expanding them in the next chapter.

CHAPTER SIX: DISCUSSION OF RESEARCH FINDINGS

We look for solutions to our situations as though solutions are mysterious and beyond our reach. It's the sheer ignorance of varying degrees that prevails, beats and oppresses us- We must be educated to beat ignorance (Stephen Pokawin, 1993, p.91).

6.1. Introduction

Pokawin rightfully argues that ignorance needs to be beaten and the tool needed to achieve that is obviously education. In order to help communities affected by mining operations to improve their livelihoods, human resource development through investment in education for local landowners whose livelihoods have been altered is an important endeavor to recompensate for the loss and also for giving landowners hope for a better life. This chapter discusses the findings of the research into this field. Drawing on the literature reviews and the findings of this research, this chapter is structured around the main themes of the research, centered on the attitudes and commitments of key stakeholders⁵⁵ towards enhancing education for local people's sustainable development. The chapter firstly revisits the link between mining, education and sustainable development. Secondly, factors that contribute to an effective education system with an emphasis on the importance of educational inputs will be covered. Then in the third section, the chapter will discuss the significance of educational participation in enhancing the education sector. Finally, educational outcomes in light of some of the issues that hampered education over the years and what the future looks like for the education sector within Porgera post mining will be explored.

⁵⁵ According to the Final report of the MMDSD (2002, p220), 'the mining company has a major responsibility for achieving (local sustainability development), but it cannot achieve this alone. Communities need to own this process and organize themselves accordingly.

6.2. The Scene for Discussion; Linking Mining and Education.

Papua New Guinea is a country endowed with mineral wealth. Mining has contributed immensely to both the local and national economies as discussed in chapter two and chapter three of the literature reviews. The substantial amount of benefits mining brings at the expense of huge environmental and livelihood disruptions and destructions were noted by a series of authors (Banks, 1993, 1996, 2001, 2003, 2006, Filer, 2006, Filer & Macintyre, 2006, Jackson, 1991, Burton, 2006, Imbun, 2007, Paull, 2006, et al, Finlayson, 2002) and others. Although the mining companies are said to be contributing immensely towards educational developments, this study shows that more needs to be still done. However, the mining companies are not to be singled out as the state and other regulatory entities should also be held responsible as obligated to improve the livelihoods of their citizens. Education provision is the prime responsibility of the state to its citizens. However, the inability of the state to effectively provide these basic services including health compels communities to demand these services out of desperation from mining companies at the expense of long-term destruction and desolation to their livelihoods due to their remote localities (Imbun, 2007).

Previous studies undertaken by Banks, Filer, Imbun and others confirm that there is very little or minimal government presence in areas of mining operations. The governments' absence in resources project areas gives local people no choice but to look to companies to meet their development needs. This study confirms that there is certainly lack of government officers within the district to manage and address educational issues. Consequently, mining companies take on the government's role instead doubling their CSR roles and taking the host government's responsibility as well. Logically, communities cannot wait forever to access development; for them it is a case of now or never. Just the mere sight and sound of heavy machinery moving into their backyard is already a sign of accessing development and modernity (Filer & Macintyre, 2006). However, as discussed in chapter two, despite such swift developments, local people lack to foresee the detrimental environmental and social ills that comes with mining that could transform their lives forever. Samana (1988) warned that, "Mining developments either bring genuine development or promote devil-uptment". This study revealed that although development opportunities are

presented by the mines, lack of capacity and proper institution fail to harness mine benefits to improve livelihoods, which are still prevalent within organizations and at the local levels. This in part is blamed on the relevant government agencies. However, the government is still the policy maker, regulator, a major financial beneficiary and part owner of a number of mines (Banks, 2001, p.25). PNG government has been inconsistent in performing their roles to maintain active involvement in development plans, issues and coordination due to lack of staff, resources, and capacity (Banks, 2008). Consequently, the brunt of mining developments is borne by the communities which should not be dismissed as they are quite often unfairly disadvantaged (Banks, 2001, 2008, Whitmore, 2006, Imbun, 2007, Humphreys, 2007, Burton 1998). In compensation for such neglects, mining companies advocate for sustainable development (SD) initiatives for local communities. SD continues to be the common language within the mining industry. Although it has been continuously debated, (see chapter two and three), SD is important for the local communities.

One key SD option is the long term investment in sustainable human resources development of the local people (Alam, 2008, Sen, 2000, Friere, 1998, Thirlwall, 2002). The Human Development Report beautifully describes SD as;

Sustainable human development is development that not only generates economic growth but distributes its benefits equitably; that regenerates the environment rather than destroying it; that empowers people rather than marginalizing them. It is development that gives priority to the poor, enlarging their choices and opportunities and providing for their participation in decisions that affect their lives. It is development that is pro-people, pro-nature, pro-jobs and pro-women (Human Development Report, 1994).

The human development definition signifies the approach of development mining companies and stakeholders should take to improve the livelihood of the local people affected by mining operations. The sustainable human development approach coincides with the Sustainable Livelihood Approach (SLA), where local people affected by mining can recover from the loss of their environments and provide opportunities for the current generation to live and develop for the next generation to improve their livelihoods (Chambers & Conway, 1991). Educational developments could be one way of addressing SD for these communities. According to the

philosophical perspectives of Amartya Sen (2000), Paulo Freire () and Robert Chambers (1991) as discussed in chapter three, all hold in common that education provides that freedom people can access to develop and contribute to improving their livelihoods after the mine is gone. The role and significance of education was discussed extensively in chapter three (World Development Report, 2007; UNESCO, 2000; AusAID, 2001; Alam, 2008; NZAID, 2009; and UNDP, 2002). People should be given the opportunity to develop their lives and maintain their livelihood to enjoy improved and quality life. Therefore, viewing education from a sustainable livelihood approach and SD within the context of mining has been the focus of this study. Thus among mining development benefits, educational development that must be pursued by communities affected by large scale mining projects as it serves as the primary means to effective, equitable and coherent sustainable livelihood for indigenous local communities around the fringes of the mine operations.

However, most times mining companies publish glossy SD reports that purport to show how much development has taken place within the affected communities. This study found that, many of those reports were written for corporate reputation without the real stories from people affected. Furthermore, this study looks at educational developments and progresses from the local people's perspective. The study showed that very little have transpired over the years since the mine started in 1990 at Porgera. However, mining companies are not alone in this but should still need to take responsibility for this. The state and other obligated authorities also have a critical role, so as do parents. Educational investments lead to long term SD and that has been true in many communities around the world. Although the government of PNG enjoys and boasts about the significant revenues generated from mining, its social indicators are declining. When social services are declining and not meeting standards, the education system is also encountering problems as discussed in chapter three. The following sections discuss the research findings to highlight the enabling factors for effective educational developments especially for communities affected by mining.

6.3. Educational Developments in Papua New Guinea

The findings from this study show that the country's education system since independence whilst expanding and progressing still has common problems alongside its progression. Although the education system is mostly funded and managed by the government, the support has been multi-lateral and includes donors, churches and the private sector. As discussed in chapter three, Avalos (1993) highlights one of the main principals of the preamble and the Matane report where 'education is recognized as the right of every individual that frees him or her from ignorance, oppression and domination in order to take an active part in society'. However, the findings from previous studies and from this study show that many children have still not yet accessed their rights to education due to the ranges of reasons discussed previously. The persistence of poverty, inequality, deprivation, and decades of development has not shown adequate improvements in education (Shaeffer, 1993). Many educational institutional infrastructures are in appalling condition and appear to have not reached standards yet. Furthermore, there is a huge disparity between schools in urban areas compared to schools in rural areas. The dilemma of whether equal chances of education should be enhanced and supported by the government still remains (Avalos, 1993). Consequently, PNG educational institutions face ongoing issues although reforms, plans and conferences that are developed and held every now and then (Connell, 1997, Guy, 2006, Gannicott, 1992, AusAID, 2002, World Bank, 2007). Many of these plans and reforms seem to be happening in Waigani⁵⁶ with little input or trickle down effects at the outlying areas of the country.

PNGs education system has undergone frequent policy and reforms in recent years. Part of the reason is to meet the increasing demand for education as a result of an increase in population. Another important factor is the need to respond to international development goals in a bid to address some of the ailing issues in educational developments. So much hope was placed on national and international goals and policies such as Education For All (EFA) and Medium Term Development Strategy (MTDS) in recent years, but for many sectors of the society, education is becoming less, rather than more available, and its quality fast eroding (Shaeffer, 1993). This study shows the deteriorating conditions of schools within the heart of a world class

⁵⁶ Government Centre of Port Moresby, PNGs Capital City

mine in Porgera is an example of what could be expected in non-mining communities elsewhere in the country. People do not get to see the government's presence often in the form of services provision and developments. Although the government implements reforms and policies and regular reviews, PNG has not advanced any further due to ongoing problems such as poor retention, high attrition rates, and systematic bureaucracies (Tetaga, 1993). There is a definite problem of mismatch between policy and practice (AusAID, 2002). In the current study, most principals said they do not know much about national education policies and plans developed from Waigani because they are made to lure donors without inputs from remote schools who are facing hardships. This would be the same scenario in most of the remote schools within the education system. Consequently, PNG's education system is characterized by lack of professional support, poor infrastructure, inadequate supplies, heavy responsibilities and little community support (Tetaga, 1993). Although researched, debated, funded and policies made, we have yet to reach satisfactory levels even with external support (Pokawin, 1993).

Partnership in education is inevitable and is necessary for the education sector in PNG to meet the costs of its operation and plans for expansion (Quarshie & Zeming, 1993). It is common that formal agreements and partnership do not seem to work due to politics and infighting. In this current study, it appears that lack of partnership drags the education sector down in part due to local and national politics and power dynamics at play. It is only through such arrangements and commitments where stakeholders (both internal and external) can commit to supporting the education sector. Importantly, whether it is a private-public sector arrangement or community-community partnerships, partnership in education cannot ignore the role of all levels of government, NGOs and private sector organizations (Quarshie & Zeming, 1993). Lack of external support really affects the flow of services and only those within the urban area benefit. It is for this reason and others that local communities look to private sector support for basic state services as discussed in chapter two giving away their land and heritage (land, resources) in exchange for educational services, development and access to modernity (Filer, 1999, Filer & Macintyre, 2006). This thinking appears to be the trend at the Porgera gold mine since production began in 1990.

6.3.1. The Education System in Porgera

The study found that the education system in Porgera over the years has gone through some testing period without much improvement in outcomes. Various studies carried out over the years show a similar trend in the local people's behavior and attitude towards education. Furthermore, it appears that there is lack of commitment from key stakeholders who have been working and committing resources in isolation from each other. Prior to the start of the Porgera mine, studies undertaken by Pacific Agribusiness (1987) showed that the educational focus was more towards gaining education for possible employment within the Porgera mine. Mascord (1998) also predicted unprecedented benefits to flow from the mine that could benefit a lot of Porgerans to access and further their education. That also includes improvements in educational facilities and infrastructures (Pacific Agribusiness, 1987, Mascord, 1998, Bonnell, 1999, Banks & Bonnell, 1997, Filer, 1999). Given the locality of Porgera, there was less government presence, hence less services provision. The mining company and churches took over the provision of basic services within the Porgera valley. In 2002, Porgera was said to have excellent necessary mix of all the educational institutions by PNG standards to meet the educational needs of the people (Filer, 1999, Bonnell, 1999, Banks & Bonnell, 1997, PJV Responsibility Report, 2009). However, these excellent facilities and institutional set ups begin to drop and deteriorate due to many factors as discussed in chapter three.

This study shows that one of the reasons was lack of coordination and appropriate use of available resources. Lack of proper plans and policies and partnership contributed to the inappropriate use and misuse of available resources. In addition, local Porgerans lack of initiative, commitment and enthusiasm to help maintain educational institutions led to more schools been closed down due to tribal fighting and other issues (Bonnell, 1999, Filer, 1999, PJV, 2002). As discussed in chapter three, issues that were affecting the progress of education were not addressed systematically. This study found that most of the key stakeholders were doing their own thing at their own timing randomly. There was very little coordinated effort, and as such school principals and school boards found it difficult to bring together stakeholders to discuss issues affecting education within Porgera. Although Bonnell (1999) in her study reported that the Porgera mine was the 'catalyst' for significant improvements in

education for the Porgera valley, this study shows that there is still need for further improvements in all areas to enable education system in Porgera to be above that in other parts of the country (PJV, 2002, Minnala, 2010). Having said that, I will now look into the three main factors as discussed in chapter three that contributes to an effective education system in light of the literature and the findings from this study; educational inputs, educational participation and educational outcomes using the sustainable livelihood framework to assess educational developments, progress and achievements to date since mine began production in 1990.

6.4. Educational Inputs

This study revealed that educational inputs (in terms of resources) are important for an effective educational system to operate and deliver desired learning outcomes in the wider context. Educational inputs are factors that contribute to the overall growth and development of the education sector and include a broad spectrum of ideas, human resources, infrastructure and facilities (Barrow & Rouse, 2005, p.1, Beirne & Campos, 2007, p.59, Chang & Radi, 2001, p. 8). Educational resources can further include cognitive resources, influence, goodwill, materials and personal resources including institutional capacity and time (Bhola, 1993, Gannicott & Throsby, 1992, AusAID, 2008). Whilst these are considered relevant and important towards achieving sustainable educational developmental outcomes for the local communities, there are more immediate demands placed on authorities within Porgera in terms of resources. However, proper planning, resources allocation, adequate and continuous funding enables effective educational developments (Tagis, 1993). Successful educational innovations are dependent upon creative and secured internal resources, including managerial and institutional capacity both at the organizational and individual levels (Tagis, 1993, Gannicott & Throsby, 1992). This study found that there are adequate resources available for educational sector developments within Porgera. However, it appears that there is lack of capacity, enthusiasm and will to utilize available resources and expertise to enhance educational developments. The research found that part of the reason was lack of locals' own initiatives and lack of coordination by key stakeholders that has been hindering the progress of education. According to Minnala (2010), whilst the opportunities are available, more efforts are needed to contribute to Porgerans' education. However, educational developments are a shared responsibility

and require support and partnership and long term ongoing commitments (AusAID, 2009, Tagis, 1993, Avalos, 1993). Therefore this study now discusses the level of support available and accorded towards Porgeras' educational sector developments in terms of institutions, plans and policies, infrastructure and facilities and financial resources.

6.4.1. Educational Institutional Support Systems

Educational institutions require inputs from its key stakeholders in whatever form at every level to enable its operations to function effectively (Apple, 2006). Among these stakeholders, teachers are the key people within those institutions that impart knowledge and help students develop along the paths of learning and need support in terms of resources, facilities, teaching aids, motivation and moral support to do their job well (Throsby, 1992, Chang and Radi, 2001, Barrow and Rouse, 2005, Beine and Campos, 2007,). However, this research found that teachers have not been given the kind of support expected from a booming mining community. Free accommodation with electricity was seen as the only incentive they get from teaching in a mining town. Another cumbersome incentive available is the mining allowance of which all teachers admitted they have never received, although most of them have taught within Porgera for the last five years or more. Many cannot afford to travel to Port Moresby to claim those allowances as the cost of travel will be the same as the amount they will claim. Furthermore lack of modern banking facilities and functional district services complicate things for teachers to who at times cannot access their pay checks for weeks and even months (Bonnell, 1999). The current study found that in order to help meet the needs of their families, teachers resort to spin off businesses using free electricity (for schools that have electricity) to make ice blocks and bake donuts and sell them to the students in order to earn extra money to make ends meet. This has a tremendous impact on the students learning as teachers spend less time on giving their best to the students. According to Tetaga (1993), lack of professional institutional support, inadequate supplies and the appalling state of teacher's houses and condition is a great concern. These was also evident from my interviews when respondents said, they knew they would not gain anything whilst teaching in Porgera, because there are not many facilities and they are still struggling to live and perform their duties.

Parental and Community Support. An important area highlighted in this study is the level of support given to educational institutions by the community and especially landowner parents affected by mining operations. From the perspective of EIAs, parental and community support towards educational institutions within Porgera has been very poor. This is found to be a huge concern not only for the current conditions but also for the sustainability of the education sector within Porgera, which has already proven to be a major threat to the education system. It appears that landowner parents are too busy with immediate consumption and accumulation of wealth and seem to have turned a blind eye to the future of their children (Banks, Bonnell, Filer, and Imbun). According to Tetaga (1993), the education system in PNG is characterized with little community support especially in urban and resource development areas. The community should be taking on the task of school maintenance and buildings. However, as this study shows, this appears to be a major reason why educational infrastructures and facilities continue to deteriorate. The research further indicated that parental negligence was one factor; local people still have not understood the importance of education as yet. Porgerans think that the mine will continue for a longtime, therefore there is no need to be fussy about education. This is further complicated by the rapid increase of polygamous relationships by wealthy local men who seem to have little or no time for their children.

Management and Organizational Support: In terms of institutional support given to schools by PJV, PDA and other non-government stakeholders, the research showed that all assistance given was on an ad hoc basis and were sometimes “one-off” only. For instance, some schools received assistance from the company or PDA only once over the last five years. Other schools although have written many letters of request for assistance to PDA and PJV but have not received any support as yet. The number of letters of requests for assistance submitted time and again to organizations indicated the extent to which much help is needed to improve schools. The research found in common in all schools was that, the problem is not one of resources, money and time, but rather a lack of a systematic and coordinated approach in supporting educational institutions. What Porgera schools have within their reach are power, resources and expertise. However, due to lack of consistent planning, consultation, and discussion of issues, the education sector is found to be in disarray. For instance the Porgera International School will soon be closed and this closure indicates how

things would go wrong when there is lack of coordination, management and support. What Gannicott and Throsby (1992) referred to as ‘bundle of inputs’ seems to be missing and the consequences will be borne by young Porgerans in the future.

Management and Coordination of Educational Resources: Educational resources in PNG are scarce given the situation highlighted in chapter three. Therefore whatever resources for education that is available must be put to good use to achieve results. Although the needed educational institutions are based right near the Porgera gold mine, there is still obvious need for more resources. The need for more control and appropriation of resources within Porgera is particularly apparent. However, it appears that there is lack of control over resources that leads to mismanagement and misuse of resources⁵⁷ within institutions and organizations by leaders. Furthermore, the research found that there is lack of enthusiasm and interest from the local people to maintain and care for resources and facilities that were funded and put up. Also, the sheer acceptance of deteriorating school conditions as normal, and lack of commitment from all stakeholders (the local leaders, organizations and government agencies) further contribute to the appalling conditions of most of the educational institutions. For instance, these factors make the work of teachers a constant struggle as they try to keep the schools operational throughout the years. Unlike communities elsewhere, Porgera should be more advanced in educational developments. Sadly the current study reveals that these have not been the case although demand for education amongst Porgerans is still high as stated by Minnala (2010, p.7);

The need to build human resources is a realization of the fact that current trends of doing things may not be sufficient and sustainable for the future and hence there must be an aspiration to change things to step up to the next level.

According to Bhola (1993) educational developments should be planned, implemented and monitored. All the EIAs’ interviewed stated that there should be an annual budget allocation roll out plan for each institution rather than relying on one-off project supports which are normally untimely, inadequate and one off. Principals’ argue that they are already fed up from repeatedly writing letter of requests. These sentiments agree with a senior mine employee (MKS2) who stated that ‘he was not

⁵⁷ Resources here refers to misuse of working time for other personal things, use of institutional resources for personal gains, misuse of funds, facilities and inadequate or excessive allocation of resources without proper justification and planning.

aware of any past records and there has not been a planned process which guides and directed how assistance were provided to schools.

The current study indicates that although millions of kina are being disbursed through PJV and PDA every year, most funds do not get to translate into tangible outputs. The reasons appear to be due to lack of coherent, well-coordinated and systematic approach in addressing educational development within the district through efficient and transparent allocation of resources. Most local people argued that local leadership was to be blamed for not looking into educational development enough. However, the EIAs interviewed agreed that local parents should bear a large part of the blame for the current problems education within Porgera is facing. Furthermore, from the perspective of local people, many still believe the mining company should also take more responsibility. Whilst the company celebrates its 20th year of mine production, little in terms of local peoples livelihood has really changed as noted by this local employee from PJV; *We seem to be mining the mineral wealth in Porgera valley over the last twenty years but we have yet to mine the real gold...an important one which is the human resources (Ipili people)* (LOY1). This means, few Porgerans have gained professional qualification and been adequately educated over the last twenty years.

The current study found that there is still a need for more systematic coordination, management, allocation and monitoring of resources and assistance given to the educational sector within Porgera. The balance sheets of PJV and its shareholders as portrayed in PJV sponsored reports show that education has been a priority development aspect and greater resources were committed over the years. However, the results show that educational infrastructures and learning facilities of schools within Porgera are no different or even worse than schools elsewhere in terms of standards and infrastructures. This is because the factors that will enable schools to develop and maintained are lacking. In addition support for educational institutions although initiated by key stakeholders, has been staggered, unsystematic and lacking proper coordination in terms of policy, planning and implementation.

6.4.2. Plans and Policies

A world class mine like the Porgera mine operates on well-developed policy frameworks, plans and agreements. The study reveals however, that there seems to be a lack of proper holistic plans in place specifically for the educational sector development that could secure stakeholders conduct in terms of allocating resources, monitoring and managing the education sector. Although there are adequate funds available from mine benefits, timely allocation along with adequate funding in line with long term plans have been an ongoing issue. According to Tagis (1993), an inconsistent commitment to plans and unexpected shifts in policies and resource allocations are common within the education sector and are detrimental to the overall progress of the education system. Furthermore, most well developed and documented education policies and plans work when there is sustained commitment from key central agencies (World Bank, 2007). One of the more recent holistic plans was the Five Year District Development Plan funded by a local politician (Member for Laigaip Porgera in 2008). However, according to the research findings, the plans and policies appear only on paper and seem to be shelved, as they fail to show signs of implementation and compliance with clear budget allocations. The mine closure consultation document plainly confirms this;

However, there are no comprehensive plans for education services for the Porgera district. In the context of mine closure and the anticipated reduction to the education budget, a key priority is the development of such a plan (PJV, 2002, p.53).

Furthermore, from the teacher's perspectives, plans and policies developed were not widely circulated and made accessible to them as implementers of education. Most teachers had very little knowledge of the plan's content and how to go about implementing the plans and policies. Teachers also had very limited understanding on the National Education Plans (NEP) and policies including global educational campaigns such as "Education for All" (EFA) or the Millennium Development Goals (MDGs). Although contributions towards the education sector were made as detailed in reports such as PJVs sustainability reports (years 2001, 2002, 2003, 2004), teachers still lack a broader understanding of national and global educational development goals. Another vital aspect in relation to the policies and plans for education is the

tying of budgets to the plans. Financial and non-financial resources are needed to achieve plans and policies. All of the EAs interviewed admitted that many good plans, policies and agreements were in place but the funds for implementing them do not come in on time, are not available, not adequate or just one-off funding. These make educational developments more difficult and are in part blamed on administrative and political reasons. The current study showed that the capacity to implement plans, allocate resources appropriately, coordinate reforms and monitoring has been lacking. The important factor is to effectively translate policies into practice in a timely and equitable manner.

From previous studies conducted and compiled such as the AusAID report, quite often there is a disconnection between policies, ambitions and practice (AusAID, 2009, p.8). This can cause delays in translating policy to practice which can create problems with partners' relationships and make it difficult to coordinate efforts from other stakeholders (AusAID, 2009, p.8). This study further found that teachers cannot do much at their level as people who make decisions over funds and resource allocations lack genuine interest in improving the education sector. Lack of commitment of people in positions of power was highlighted by Pokawin (1993) who argued that "those in the positions of power and influence in public policy should be committed and stop criticizing and be innovative to meet the educational needs of our people". However, this does not seem to have happened in this case as the study reveals of people in positions of power and responsibility at Porgera. The condition of the educational facilities and infrastructures on the ground reflect those situations and speak volumes. There are plans but they do not seem to work because nobody takes ownership of the plan. Plans will only work when funding and expertise are put together in terms of not only administration but the physical developments of facilities and infrastructures. According to Murphy (1993), planning requires research, consultation, meetings, forums, negotiation, and documentation. It requires time and effort. From the findings of this study, it appears that most of the plans and policy in place were developed with no or limited consultation, meetings or any discussion. Therefore, when it comes to implementation, no one knows what to do as people seem to be lost due to lack of knowledge about the overall plans and policies such as, for instance, plans to expand the schools infrastructure and facilities.

6.4.3. Infrastructure and Facilities

The study showed that educational infrastructures (teachers' houses, classrooms, desks, computers, school fencing) within most schools were either not adequate or in a very appalling conditions. Whilst infrastructures and facilities play an important part in enhancing the growth and operations of the educational institutions, all of the schools visited were in appalling and deteriorating conditions lacking most basic facilities and infrastructures. Most of the EIAs admitted that they have been struggling to keep the schools running over the years although the facilities couldn't cater for the increasing number of students. Maintaining a functioning education system requires adequate inputs from stakeholders in various forms (Barrow & Rouse's, 2005, Beine & Campos, 2007, Chang & Radi, 2001, AusAID, 2008, Gannicott & Throsby, 2006, Coe, 2006, Psacharopoulos & Woodhall, 1985). Educational developments involve costs and require a collective effort from stakeholders at every level and at various capacities. The provision and acquisition of resources such as classrooms, staff, syllabus, curriculum, computer and other teaching facilities are among some of the basic educational inputs commonly required. This study found that teachers were keen to improve educational infrastructure and facilities but lack the support from authorities with resources and power to make decision in allocating resources. For instance as one principal noted, *I just came to this school thinking that this school was located in a mining township so should have all the facilities set up. When I came I was shocked* (EIA2). Another also expressed the same view, *as an implementer I see that PJV is not doing enough for local people and I am not getting the assistance I would expect from a mining company* (EIA3). From the EIAs perspectives, PDA and PJV have not been doing enough in committing resources in a coordinated and timely manner for schools infrastructure and facilities improvements.

Undeniably, PDA and PJV have been providing educational support both in terms of infrastructures and scholarships through the Tax Credit Schemes (TCS) over the years. However, this study found that TCS educational assistance provided were focused more outside than for schools within Porgera. For instance there was more concentration and allocation of resources to schools outside of Porgera mainly Enga and along the highlands highway and Tari areas. The main reason was to maintain

cordial relationships along the highway with communities which are important for the movement of logistics for the upkeep of the mine's operations. Another reason revealed by this study was due to ongoing law and order problems within Porgera, authorities thought it was a waste of resources to put up services when they will be destroyed again through tribal fighting and vandalism. Furthermore, this study found that there has been lack of specific assessment on the level of infrastructure and facilities support provided by PDA, PJV and the state agencies over the years on the level of support given to the schools. From the perspective of communities and teachers of schools within Porgera, felt these were an important task that was overlooked. All the EIAs argued that an ongoing assessment is a great way to see for themselves the conditions of the school's infrastructures rather relying on reports. This means whatever assistance given to schools was all "one-off" and lack ongoing systematic support. For instance, classrooms maybe funded for a school in three years through TCS but teachers and parents hold the view that providing an empty classroom alone is not enough. It should come with ongoing basic support in terms of desks, tables and other learning aids. Tagis (1993) argues that educational administrators need to assess the sustainability of schools and design projects in line with available resources. Another important finding was the need to use electricity to prepare lessons for all schools within Porgera. However, for some schools, teachers find it difficult to prepare lessons well because they could not operate duplicating machines, computers and copiers without electricity. This is a burden for schools who are trying to take in upper primary grades. Schools cannot expand or increase because they don't have the means, whilst electricity is not provided.

The study further shows that many of the educational institutional infrastructures and facilities are either in a state of repair or not enough to meet increasing demands (Refer to Appendix I for photos). Bonnell (1999) also attested to these conditions. Few buildings (staff houses and classrooms) look modern from the outset and there are still shortages of staff accommodation in other schools within the district. This in part is also the failure of the community in looking into these issues. As noted by a Principal: *I used the subsidy money and built two staff houses and classrooms, I have written many letters for assistance but nothing came so I had to use money that the school has* (EIA2). More appalling is the lack of stable support from the mandated local authorities to look into educational development issues affecting landowners

such as PDA in any form except the payment of SML fees from the trust. This lack of support from the local themselves appears to be a great concern in so far as the sustainable educational development outcomes are concerned. Presumably Porgerans' perception is that the SML Children's Trust Fund meets all their educational needs, and as such the sector does not need their involvements.

6.4.4. Subsidies and Trust Funds

As discussed in chapter two, previous studies conducted by various authors indicated that there were substantial amount of money being made available for landowners through various proceeds from the mine (Finlayson, 2002, Banks, 2002, 2006, Filer, 1999, Filer and Macintyre, 2006, Togolo, 2006, Connell, 1997). However, this study indicated that the main form of financial resources that kept most schools operational is through subsidies from the government and school fees paid by the parents. For instance, school fees for most of the children from the SML areas are paid by the SML Children's Trust. From the perspective of EIAs, although funds are paid from the SML Trust, the payments are often made very late sometime in the second quarter or third quarter of the academic years. Teachers argued that this is not good for the schools. Funds are needed from the beginning of the school year to purchase stationery and school supplies. Furthermore, according to many landowner parents, the manner in which the SML funds are distributed to schools was lacking foresight and clear directions. There are no proper records of who is benefiting and from which clan. Although, Psacharopoulos and Woodhall (1985) and Sykes (2001) argue that the cost of education should be borne by society and parents in particular, SML children's Trust appears to offset this burden for most landowner parents. However, while the SML Children's Trust eases some of these problems parents face, in terms of school fees, the research revealed a lack of proper systematic process of handling the fees and disbursing them to schools on a timely basis. However, the fund itself was an excellent initiative framed and established through the mine to advance local peoples educational opportunities.

The current study also revealed that the SML Trust fund payments to schools makes landowner parents become lazier and fail to contribute to school programmes and activities thinking the Trust fund has catered for them. Many parents are too

dependent on the Trust fund. However some parents still pay from their pockets. This means the funds are not benefiting everyone from the SML areas. This also means other Porgerans who are part of the wider Porgera community do miss out from the SML Trust although they live and attend schools within the mine. According to previous studies (Banks, 2005, Filer, 1999, Bonnell, 1999, PJV, 2002), the fund has continued to be plagued by incompetency, maladministration and a lack of proper record keeping and data management of recipient information over the years. Local people feel that the fund has not fully benefited the legitimate SML landowners. It appears that the funds have been politicized and local children who are supposed to be in school are still living roaming idly in the villages. This contradicts the World Bank report (2007) that notes that parental support is required for education. According to this research, many local landowner parents argue that those who are in charge of the funds send their own kids to better schools overseas leaving behind other children for schools within Porgera.

Other parents also said that some of the students who benefited from the funds are not legitimate SML children but children who are either in-laws or related to people in charge of the funds. Apparently, lack of proper records of students who have benefited from the fund have not been updated and properly kept since the establishment of the Trust Fund. This means that the current trustees do not have any obligations for Porgeran children who will be needing support in the future when the mine is closed. Combining previous studies with the findings of this study, it appears most likely that the fund may not be able to sustain itself into the future post mining. However, the study found that resources in terms of funding were often limited and inadequate. In order to maximize the benefits available for the local communities; there is a need to look outside of the two major source of financial support for most of the schools. This is because educational developments require partnerships and participation from all stakeholders (Avalos, 1993, Human Development Report, 1993, Klaus, 2001).

6.5. Participation and Partnership

Participation in educational sector development is an important factor. In this study, participation and partnership were considered vital for improving the education sector. Within the Porgera education system, a number of significant stakeholders are involved in supporting, developing and maintaining the education system. The development realms see participation and partnership as essential elements that contribute to achieving broader development goals (Chambers, 1991, Gannicott, 2006, Avalos, 1993, Klaus, 2001, Human Development Report, 1993). Therefore, active participation reflects stakeholders' commitment to their roles and obligations towards each other and the community in which they serve. However, this study indicated that participation among key stakeholders within the Porgera education system seems to be lacking. It appears that instead of supporting and participating in forums and discussions, stakeholders seem to be criticizing and blaming each other (Sykes, 2001). This study's results also confirm Sykes' views which show that stakeholders have been blaming each other for the failure of one stakeholder not taking on responsibilities both at the individual levels as well as the organizational levels (Shaeffer, 1993, Richard, 1993, Avalos, 1993).

The study further indicated that most stakeholders still failed to understand the significance of participation and its benefits at every level (Avalos, 1993, Demerath, 1999, Gannicott & Throsby, 1992). Shaeffer (1993) noted that participation often leads to changes in people's knowledge, attitudes, skills and the distribution of powers, directly placing demands for goods and services more relevant to the community needs. However, this has not been the case in Porgera as participation between key educational stakeholders seems to be in disarray over the years. For instance, according to most EIAs, local parental participation in all forms in supporting the schools has remained very poor. This reflects on the parental part who failed to understand the significance of education in relation to their children's future. Furthermore, this study shows that there has been limited or few meetings held with district authorities (PDA, PJV, and LLGs) to discuss issues affecting the progress and development of the education sector within Porgera formally over the years and teachers feel left out. Despite having formal partnerships and agreements in place, there seems to be a lack of practicality in terms of participation and networking. Avalos

(1993) argues that if all want to participate, there must be commitment to that participation. This is because any changes significant to people's lives will require their participation. However, this study indicated that each stakeholder seems to be working in isolation, especially organizations with authorities who have the means to funding and decision making powers. Therefore, Pokawin (1993) pointed that those in positions of power and influence should be more innovative and participate to improve the education system. However, lack of commitment has led to lack of involvement led to less participation, confusion and lack of direction in maintaining networking and relationship to support the growth and operation of the education sector. The study further shows that local people including teachers were confused as to whose role it really was to provide assistance and the appropriate channels through which they could seek such assistance. Although, commonly, the provision of educational services were the primary responsibility of the government, many argued given the extent of the mine and its destruction on their livelihood, the mining company should really take up the responsibility as the people do not have confidence in their governments (Filer, 1999, Imbun, 2007, Bonnell, 1999). It is in this regard that participation and partnership amongst stakeholders was deemed important for SD post-mining. The Porgera mine closure consultation document clearly highlighted that 'partnership amongst stakeholders' was a fundamental principal in PJVs approach of achieving SD (PJV, 2002, p.3, Banks, 2003). However, from the perspectives of stakeholders on the ground, complying with partnership agreements seems to be lacking amongst stakeholders within the education sector. An important aspect to hold each stakeholder to be accountable for their own responsibilities, and other stakeholder's obligations in performing their roles. This has not been the case as argued by an EIA: *No, we haven't been doing that. We should be talking about the district education management committee and about educational issues in view of post-mining, how many local professionals the mine has produced and will produce and the sustainability of educational institutions* (EIA3).

According to local elites and teachers no one is facilitating the process of bringing stakeholders together to discuss educational developmental issues within Porgera. For instance, as noted by local elite, *No one in this valley is seriously looking at the education system. Only few people have been struggling all alone by themselves. No*

Porgeran leader is seriously looking at the education sector (MKS2). The CPD⁵⁸ Manager (PJV) also expressed the same sentiments, there were many meetings that were held but I am not aware of any concerted effort between the different key stakeholders to come together and push things forward in a systematic way (MKS1). That culture diverts from PJVs aspiration to work in partnership with stakeholders which also contrasts with an important clause contained in the 'National Charter for Reconstruction and Development of the National Department of Education' which state:

The main principal that governs the national Charter for Reconstruction and Development entails partnership between governments, NGOs, including churches as well as parents and communities (NDOE Annual Report, 2000, p.2).

The charter called for various arms and layers of government to take ownership of the education system at their levels. For instance, LLGs were to take ownership of elementary, lower primary and upper primary schools while the upper primary schools and vocational centers to be taken care of by the Provincial Governments (PG) (NDOE Annual Report, 2000, p.2). However, the clause failed to recognize the role of the private sector as a major stakeholder and partner in educational developments. Whilst this study recognized the significance of the private sector participation at all levels has been very weak and nonexistent in some instances. For example, the parental involvement was mostly found to be very poor according to teachers and other stakeholders. Consequently, partnership between parents, and stakeholders needed improvement. AusAID (2009, p.2) ODE⁵⁹ evaluations of Laos and PNG, confirms low levels of educational participation in PNG of which Porgera is no different. These are due to many factors among which the attitudes and commitments of each stakeholder is one.

⁵⁸ The Community Planning and Sustainable Development, a section within the Department of Community Affairs and Environmental Section of PJV.

⁵⁹ This refers to Overseas Development Evaluations often conducted by aid agencies on their funded projects after completion (AusAid 2009).

6.5.1. Attitudes and Commitments

Stakeholder's attitudes and commitments seem to be inconsistent. For instance, when the mine first started, Placer Dome (at that time) was attending to community complaints and needs with an "open ear open heart" approach and was seen to be committed to its social responsibilities. However, as the years progressed, the mining company appeared to begin to tighten their spending and cut back costs. The study indicated that when institutions started cutting back costs and reducing assistance, these raised suspicion among the locals who have seen that the mining company is changing their attitudes from being so good in the first instance to being more stubborn. For instance, a local youth commented that: *when PDA shifts attention away from Porgera, the real landowners miss out* (LOP2). However, the reason PDA moved attention away from local Porgerans was because the local people could not appreciate and care for infrastructures and services provided. The study found that PDA cannot continue to burn resources when 'people's attitude problems' still persist (MKS4). Most of these services are provided as agreed in development forums and other mine agreements (Anderson & Moramoro, 2002, Banks, 1993, 2001, 2006, 2008, Connell, 1997, Filer, 2006, Finlayson, 2002, Imbun, 2006, Togolo, 2006). However, local Porgerans lack commitments to projects and fail to take responsibility towards educational institutions within Porgera. Lack of responsibility compromises Porgerans ability to protect institutions and facilities provided by PJV and other stakeholders for their benefits. Consequently, costly buildings erected by PDA and PJV have either been burnt down (tribal fights) or vandalized and many resources and efforts have been wasted. Unless and until local Porgeran's mental and physical ability to appreciate services improved and changed, releasing more funds be released for development is of little benefit.

Parents and local leader's attitudes reflect a serious problem for the future of young Porgerans. According to the EIAs, parental attitudes appeared to be a common trend in all schools within Porgera. However, from the perspective of a female local elite: *'local Porgeran's attitudes were in part blamed on previous actions by mining companies who flooded the local people with cash that caused disturbance in the mind of people* (MKS6). The study further revealed that from the perspective of local female leaders that most local men were too busy with customary roles, marrying

more wives, making compensation, and contributing to funerals and often neglect support for schools. Many parents also still think the mine will continue for many years and SML Trust will continue to meet their children's educational needs so there is no need to worry. Apparently, many Porgerans fail to realize that a mining is only temporary. Through teacher's ongoing awareness, some parents begin to realize the importance of education and are supporting education gradually. However, major donors like World Bank (2007, 2008, AusAID, 2002) still advocate that parents should take a leading role in educational development and maintenance and should really be taking ownership of responsibilities, an areas this study found to be lacking within the Porgera education sector. The onus now rests on a vibrant local leadership.

6.5.2. Leadership and Direction

Whilst leadership is a key factor in development, this study suggested that local leadership within Porgera has been of grave concern. It is critically important not to get a balcony view of the development realities on the ground but to see if the development has left an impact (Coleman, 1975). Therefore, leadership is a major factor within educational developments (Simkins, 2005). In previous studies as discussed in chapter three and five (see section 3.4.2 and 5.4.3), leadership was found to be a major issue. Pokawin (1993) whilst reflecting on education system in PNG, describes leadership within the education sector as ignorant, that prevails and hinders progress. Pokawin (1993) further argues that education system in PNG employs a system of leadership where instead of keeping up with the changes, we are falling behind. This research project showed that local leaders' lack of foresight and direction to be a great hindrance that seem to lead to lack of enthusiasm in taking responsibilities and leading roles to improve the education sector within Porgera.

The study also suggested certain factors that seem to affect the role and style of leadership within Porgera's education system. Firstly it was found that, local politics superseded communal interest. One of the common responses given by EIAs and school board members was that you only get help from authorities both at the local and provincial level if you know someone in there. This means educational services and assistance were given along the lines of political affiliation rather based on genuine collective benefits for the communities and the actual needs of the schools.

This has also shown that local leadership has been weakened and as such they are not organized to access and harness services (Simkins, 2005, McNamara & Brady, 1988, Psacharopoulos & Woodhall, 1985, Avalos, 1993, Pokawin, 1993). Furthermore, a lack of active local leadership demotivates teachers and school boards from working to improve the conditions of the schools. Golub (2006) cites a local Porgeran leader who used a biblical imagery to explain his job. Ipili, he says, *is walking through the Sinai desert of turbulent times, and need strong, responsible, “uncorrupted” local leadership if they are to reach the Canaan of a post-mine future created by SD*. In line with Golub’s metaphor, Porgera has yet to find a Moses among landowners who could help lead them beyond the mine life.

Secondly, there seems to be lack of drive for collaboration leading to lack of action by the local leaders. Simple things like conducting meetings especially to discuss and address educational issues affecting SML landowners, such as the SML Children’s Trust have not occurred regularly. *There is a failed leadership in hierarchy here. We called for meetings but it has fallen on deaf ears* (LOP2). According to female elite’s views, local leaders hardly talk about education but are more concerned about when the next landowners’ cheques will be rolled out. This responses show that many local Porgerans themselves have lost faith in their own local leaders. However, a few Porgerans wanted to lead but lack the funds and authority to do anything as they believe nothing much can be done without adequate funding.

The study further revealed that key managers and leaders do not seem to have a good knowledge of each other, and lack the ability to communicate and dialogue effectively. From the EIAs views, most of the key stakeholders within Porgera do not know each other (EIA3). Based on respondents’ voices, what seem lacking are poor communication, consultation and dialogue amongst key stakeholders within the education sector. These impacts negatively on the level of financial support, ability to take ownership and the need to coordinate progress for the education sector minimum risks (O’Faircheallaigh, 2004, Bonnell, 1999, Pokawin, 1993, Tagis, 1993). Strong local leadership is a determining factor that could direct long term educational plans for landowners’ children’s future. Webster (1993) argues those state educational objectives are not clear to teachers most times. Lack of clarity in stated objectives lacks foresight within the local leadership hierarchy and fails to attract full

stakeholder participation that could foster partnerships towards supporting the education sector (Webster, 1993, Shaeffer, 1993, Bhola, 1993, Tetaga, 1993).

In addition, local leaders' lack of accountability to their own people also led to confusion about their roles. This could be alluded to competing political interests ahead of the community's best interests. Therefore, Filer (2006, p.227) argued that competing interests manifested through political divisions jeopardize sustainability. This confirms the reality of infighting among local leaders that has affected the progress of educational projects and programs within the mine communities. For instance, Porgera Department of Open and Distance Learning (DODL)⁶⁰ is now suspended indefinitely because of local politicking and conflicts. Simkins' (2005) highlighted what most Porgeran leaders and other leaders within stakeholder organizations fail to see that leadership is one of the major factors-sometimes the only factor that will determine whether an educational institution (organization) will succeed or fail. Therefore, leadership is all about taking ownership and responsibilities, importantly in places where various stakeholders interrelate and are involved given the nature of the community and its environment such as Porgera.

6.5.3. Ownership and Responsibilities.

Previous studies (World Bank, 2008, AusAID, 2002) revealed that ownership and responsibilities of maintaining educational institutions in most cases should be the prerogatives of local communities. Although educational costs are the governments' prerogatives to provide for their citizens (O'Faircheallaigh, 2004, p.42, Tetaga, 1993, Avalos, 1993), there is increasing consensus that educational costs should be a shared responsibility (AusAID, 2009, p.1). Whilst education is a profitable investment, there are also arguments against using mining payments to fund social services such as health and education as it erodes government's duties (Psacharopoulos and Woodhall, 1985, p.55, O'Faircheallaigh, 2004, p.43). The current study indicated that there are still confusion between stakeholders' responsibilities and obligations within the Porgera education sector from various stakeholders' perspectives. From the landowners' perspective, they still think PJV should do more in developing their

⁶⁰An affiliate of the PNG University of Technology that offers matriculation studies for students who have done higher school certificates and need to upgrade or for high school certificate holders to attain higher schools certificates.

communities, including the education sector. However, the company expects PDA to lead and meet the infrastructure and facilities of most of the education system. On the other hand both PDA and PJV expect the government to also fulfill its obligations. Most donors argue that any investment in educational developments should be in partnership and costs should be spread including responsibilities (AusAID, 2002, World Banks, 2008, Bhola, 1993, Tetaga, Quarshie & Zeming, 1993). Based on the views of interviewees at Porgera, remote communities such as Porgera see the government as non-existent and ineffective in providing such services and look up to the mining company to take responsibility. Various reports (see Barrick, n.d, Sustainability Reports, 2006, 2008, 2009, 2010, Bonnell and Banks,1999) show that PJV was providing financial support through the Tax Credit Schemes as the pie chart illustrates. The sector that receives the highest support in tax credit is education (45%) followed by law and Justice (19%) and Roads (16%).

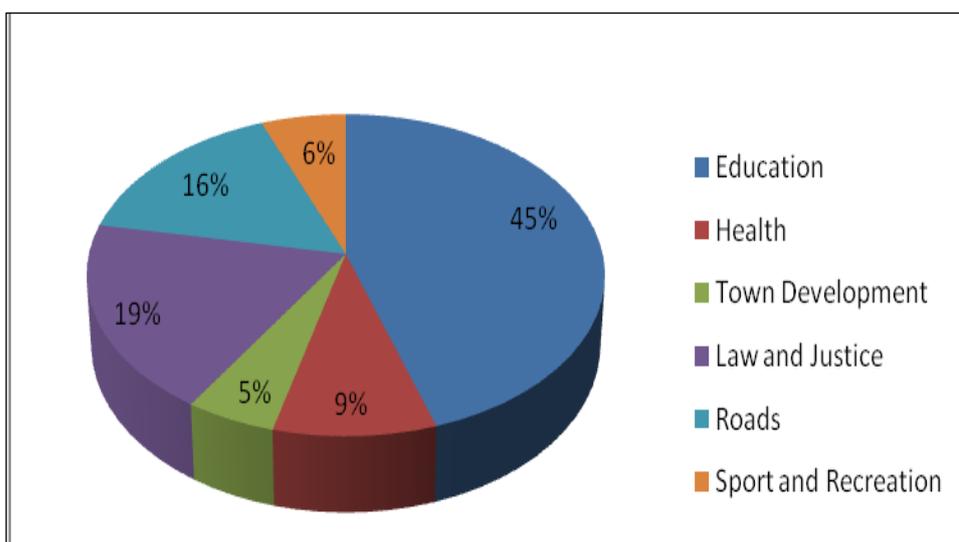


Figure 0-1 : Break down of tax Credit Scheme over life of the mine, Source: (Barrick, n.d, p.42).

It can be seen from the graph that the education sector was found to be receiving a substantial amount of funding, yet according to the findings of this study, the basic infrastructures and facilities seems to be in appalling conditions. A contributing factor in lack of ownership and responsibility is lack of understanding of their obligations on the part of each stakeholder. For instance, communities fail to understand their roles in looking after school properties by constructing basic fencing around the schools. According to Sykes (2001), communities should be taking ownership and feel responsible like the Mandak elders from Keviang from his study. Unfortunately,

Porgerans appear not to have this kind of mentality, as only a handful seems to be doing that. This study further suggests that no one (individuals/organizations) was effectively taking up the responsibility to coordinate efforts to address the ongoing issues within the education sector. As a result, physical conditions of educational institutions were all in deteriorating condition although meetings were called for time and again. Simkins (2005) reiterated that there should be clear responsibility on individual schools and institutions for improving themselves within a broad framework. Although this study did not identify a clear policy in place that demarcates the responsibilities and obligations of each stakeholder, there was wide disagreement and misunderstanding within the community over whose responsibility it really was to address issues within the education sector.

Consequently, many teachers and parents argued that district education officers should rally support from all stakeholders and work in collaboration with other stakeholders to improve the education sector. However, there has been a lack of manpower, increasing absenteeism and a lack of resources within the district education division making it almost difficult to take charge. A common perception held by the government officers is that: *PDA is there to look at educational issues. Our task is to look at the needs of the teachers only in terms of in-service and reporting* (MKS2). O’Faircheallaigh (2004) describes these dilemmas as a contentious issue where mining payments are involved (Finlayson, 2002, Banks, 2001, 2003, 2006, Filer, 1999, Imbun, 2007). This can lead to landowners relying too much on company handouts and not taking on responsibility to educate their own children and to show some form of independence in preparation for their post mining livelihoods. However, for schools within Porgera, this study revealed that instead of injecting resources into these schools, more resources are being diverted out from Porgera leaving them in dire conditions. Although the mine boasts of huge economic returns, it should not shy away from the reality that many educational institutions have fallen apart. In so far as the sustainability and sustainable livelihoods of the indigenous communities around the mines are concerned, this study reveals that there are no checks and balances mechanisms in place to monitor each stakeholder’s roles and

their performances. That is the reason why each organization does their own thing rather than in a collaborative manner.

6.5.4. Working Relationships and Networking

Networking and maintaining working relationships amongst stakeholders within the education sector is important and exists but was found to be lacking in this study (Avalos, 1993, Shaeffer, 1993, Richard, 1993). One of the key things that foster effective working relationships is the ability to hold regular meetings to share ideas and discuss and to check on each other progress. This study revealed that this has not been the case for the Porgera education sector. There were no properly planned and coordinated efforts in conducting or organizing meetings and workshop. For instance one respondent claimed; *No, I am not sure about the previous management but as far as I know anything like that did not occur. There is no coordinated method in terms of how we can do it in a broader perspective* (MKS4). Furthermore, a clergy man noted that, *there should have been procedures but I am not sure because I have never been invited to attend one meeting* (CL1). All these infer that there is a clear lack of proper organized working relationships existing between key stakeholders within the Porgera district education system, a key aspect of effectively working to achieve broader development goals (Pokawin, 1993, Chambers, 1992, Avalos, 1991). There were meetings called at times within the district but there were no formal regular consultative meetings held to specifically discuss educational issues involving major key stakeholders. Meetings at a higher level involving the key organisations with authorities such as PDA, PJV, PLOA and the district education office did not seem to occur according to the most respondents. This infers two issues, firstly, that stakeholders within the district are working in isolation without clear guidelines delivering support in a coordinated and systematic way. Secondly, it is evident that no one was taking ownership (both at individual and organizational levels). This obviously led to poor educational outcomes within the district. The study also found that there is lack of structured networking, support systems and mutual working relationship in place to support schools within Porgera from key stakeholders.

6.6. Educational Outputs

Investments in educational developments require and expect good educational outcomes in terms of increase in enrollments, improved and well established infrastructures and learning facilities that could provide wider access to a quality education for more students. However, those educational outcomes in most cases must be seen to be tangible (Coleman, 1975, Beine & Campos, 2007). Outcomes are achieved when there are better alignment of resources and when the education system is effectively operational (World Bank, 2002, Tagis, 1993, Bhola, 1993). However, what has been the achievement of the education sector within Porgera over the last twenty years? With the results of this study and from the perspectives of teachers, parents and major stakeholders (PDA and PJV) including district education officers, all hold the same view that educational developments within Porgera have not reached a standard it should have met of a sector within a world class mining community. The research reveals though that efforts committed to in the past did not effectively roll on in a systematic manner to benefit more Porgerans (Quarshie & Zeming, 1993). However, more resources and efforts were committed by the previous mine operator (Placer Dome) and this has continued with the current mine operator (Barrick) as the words of PJV's General Manager demonstrate:

During its lifespan, a 'world-class' gold mine like Porgera produces more than just gold. It helps to improve the lives of people living and working in the local community by providing jobs and opportunities for education and training through the development and maintenance of important urban services and infrastructure...I am optimistic about the future of Porgera and the positive legacy we will leave behind (Mark Fisher- GM. PJV, n.d, p.1).

In contrast to the General Manager's statement, most stakeholders in this study hold a conflicting view. Consequently, many argued that all is not well in so far as the educational sector developments are concerned within Porgera. For instance, school aged Porgeran children are still roaming around, many schools are still closed, CODE and the DODL centers are no longer operating and many schools are overcrowded and unable to cope with increasing population. Landowners themselves including their leaders are partly blamed for not taking ownership and stock of their own

developments with benefits from the mine on long term genuine developments such as education. However, two main factors that may determine whether educational outcomes projected by Mascord (1998) and Bonnell (1997) have been achieved or not; firstly, the general outlook of the educational facilities and infrastructures and secondly, the number of local Porgerans educated and trained as professionals in various trades and qualifications.

6.6.1. Past and Current Educational Conditions

As discussed in chapter five, the education sector developments have been inconsistent and facing problems over the years due to a lack of retention of teachers and students, low educational outputs, lack of proper data, vandalism and law and order problems among others. When compared with previous studies undertaken (Pacific-Agribusiness Limited, 1987, Bonnell and Banks between 1992 and 1994, Filer, 1999, Mascord, 1998, Porgera District Plan, 2008, Minnala, 2010, Pokawin, 1993) the current research indicates that the prevalent educational issues within the education sector have not been systematically addressed over the years systematically. These educational issues are not specific to Porgerans alone as the same problems are prevalent elsewhere around the country (Simkins, 2005, Shaeffer, 1993, Bhola, 1993, Tetaga, 1993, Pokawin, 1993, Tagis, 1993). However, this study found that most Porgerans got exposed to substantial amount of money at an earlier stage which made them see education as relatively insignificant whilst they can have access to the same kind of money now. However, others blamed PJV for providing local people with cash that has altered their mind-set: *After the mine started, people did not care about education because they were distracted by cash pay-outs* (LPEF1).

Reflecting on the current conditions of the schools, many local people argued that the educational conditions of the schools in terms of infrastructure have been very poor, although they were claimed to have been built with proceeds from the mine; there has been a lack of ongoing commitment to growth and maintenance of the education sector. Although, TCS and the SML Children's Trust have operated, apparently it appears that few Porgerans make it to

tertiary institutions and technical colleges. For instance, in twenty years, only one local Porgeran ever made it to an acting sectional manager position within the PJV. This means only few have benefited or have made it through either through the mine scholarship or private sponsorships programmes. Furthermore, there are many schools that are without adequate classrooms, water tanks, sanitation facilities, teachers' houses, computers, and electricity. All these show that the education system within Porgera is little different to schools found elsewhere, such as the remote Strickland River are. The appalling condition of most schools poses a serious question for the sustainability of the education sector within Porgera post-mining. This is not the kind of educational system that should be expected in a world class mining community. It also leaves questions for the future sustainability and sustenance of the education system as well as the livelihoods of the local Porgerans.

6.6.2. Future Educational Projections

This study suggested that the future of educational sustainability within Porgera looks uncertain. The results show that most people are not confident that the education sector will be able to sustain itself. However, many respondents still have the hope and suggest that as long as there is mine life still left; more efforts should be geared towards supporting the education sector by all stakeholders. Partnership amongst stakeholders is really crucial in order to achieve this (Quashie & Zeming, 1993). However many stakeholders hold a pessimistic view of the education sector into the future. The words of a clergy will hold true if the current trend continues for the local people:

The Mine has attracted people from all over to come here and work. If the mine closes, people will go back to their places and who will be interested to come back here. If we have educated people here from Porgera, services will remain, electricity will still flow and the town will still be around. Otherwise Porgera will turn to be another ghost town and that is really my fear (CL2).

The study further suggests that the future of the Porgera education sector is in a poor situation. There is a lack of systematic planning, coordination and development of the education system. All activities, assistance and support since the mine began production have been on an ad hoc basis. The end result is that the education sector becomes unsustainable. When the mine goes, there is no guarantee that the education system will be up and running if problems are not addressed now. The words of the clergy above will come to be true, which coincides well with the views of Sir Julius Chan as highlighted in the prologue.

6.7. Discussion Summary

The findings of the study have just been discussed in light of the literatures reviewed in chapters two and three on mining and educational developments respectively in line with the findings of this study as presented in chapter five. Although all necessary educational institutions are located and established within Porgera, there is not much to show that they are located within a community that is hosting a world class mine. The chapter discussed the links between mining and its impacts on education as a sustainable development aspect of improving the livelihoods of the local communities affected by the mine operations. In doing so, it distinguished between genuine sustainable developments and corporate and bureaucratic rhetoric. The chapter looked at three main areas of concern that would enable an effective and sustained education for the affected community in Porgera. Firstly, the educational inputs (resources) invested to improve the education sector. Secondly the chapter discussed participation in educational developments. This is an important aspect where commitment towards education by various stakeholders needed to be manifested and demonstrated. The third section discussed educational outcomes. After twenty years of mine production, what are the tangible outcomes of educational investments, policies, plans and resources? Within this sections, two main areas that portray improved outcomes (level of infrastructures and level of qualifications) achieved were discussed. The literature further discussed the importance of education and its potential and ability to improve and liberate affected people to improved lives as discussed in the literature contributing to improved livelihoods. However, this chapter showed that there was a need for a better education system that could effectively improve Porgerans educational levels and essentially their livelihoods for now and the

future was but was found to be lacking. The research showed that there has been lack of systematic support systems in place that could foster growth and development of the education system, maintain relationships between stakeholders despite having plans, policies and agreements in place. The summary of the research is now presented in the next chapter which covers all the main findings of this study.

CHAPTER SEVEN: SUMMARY AND CONCLUSION.

7.1. Introduction

This study in part looked at the progress of the education sector within the Porgera mine communities to see how much the mine has impacted upon the education sector and their development outcomes over the last twenty years since the mine began production in 1990. Has the mine really contributed towards enhancing educational developments, thus enabling the development and educational freedoms theorized by Sen and Friere (chapter three) for the local people to have the skill and knowledge to improve and decide for their own lives- improve livelihoods? This study looked at education from the perspective of enhancing sustainable livelihoods through education for sustainable developments as discussed throughout the literature reviewed (Chapter two and three) highlighting the research framework (chapter four) to see how local people affected by the mining operation can face the future now that their livelihoods and environments have been severely affected. The first section presents a summary of the main findings from this study, whilst the section provides the outlook of this study. The third section shows options for further research similar to this study. The final section of this chapter contains recommendations or call for action stakeholders may take to rectify some of the implications from this study. However, it is pertinent to recap on the research objective of this study.

7.2. Conclusions of the Research Findings

Is sustainable development a faceless rhetoric? Have the education sector developments within Porgera mine landowner communities wholly being supported, with commitment, greater participation and partnership from and by key stakeholders? What were the educational outcomes achieved of the educational inputs over the years? In seeking answers to these key questions, this study in part reported that educational developments within the Porgera mine need a step up. In addition

Professor Richard Jackson gave a snap shot of the idea behind this study in response to the above questions.

It is commendable for all stakeholders and resource project managers to assist communities with sustainable development projects in preparation for mine closure. It is wiser to invest in training and education emphasizing its significance so that future generations will have a chance to seek opportunities outside of their post-mine communities. So during your (mining companies) operational years, school teacher's housing is a better investment than a school itself. True sustainability is within the power of any company to do and it comes from within an organization. The skills are portable and lasts a lifetime (Professor Richard Jackson, Post Courier, 2010).

Professor Richard Jackson's quote sums up the idea behind this study very well. His sentiments concurred with Amartya Sen's view of 'development as freedom' and Paulo Friere's view of 'education as freedom' which called for freedom and emancipation of the poor and marginalized people from all forms of suppression, oppression, deprivation and ignorance sometimes systematically by those in positions of power and authority (see chapter 3 section 3.2). Communities around mining developments are threatened with the environment and social impacts from the mining operations as discussed in chapter two (see section 2.5.2). In a bid to contribute to the wellbeing and sustenance of affected communities livelihood, many projects and programmes are devised to address those development needs by mining companies. Whilst other forms of development are appropriate and needed, the focus should be on long-term sustainable development initiatives and interventions. In looking at sustainable livelihood concept, this study used the Sustainable Livelihood Approach (SLA) as a framework, a tool for planning and a development medium, in line with the qualitative research method to assess the progress of educational sector developments within the Porgera mine landowner communities (Chambers, 1991). In line with previous studies conducted by Pacific Agribusiness (1987), Mascord (1998), Banks and Bonnell (1997), that proposed more investments in education, this study also concurred with those studies but urged that educational

developments be wholly supported by all stakeholders with greater commitment and participation. Whilst mining development's economic and financial turnovers are undeniably substantial, they are an industry concurrently perplexed by controversial environmental and social disruptions that drastically affects and alters the livelihood of landowners (see chapter two). Therefore, the most viable and honorable undertaking of any mining company and the government should be for greater investments in educational development and training of the landowners. Investments and commitments towards landowners education is a call more than corporate social responsibility, and is about sustaining the fabric and stronghold of local people's livelihood both now and for the future post mining (Imbun, 2007). Specific to Porgera landowner's educational developments sustainability, three main areas were looked at pertaining to this study's objectives which are; the type of support given in terms of educational inputs, the level of participation in educational developments by stakeholders which also includes partnerships between stakeholders and the educational outcomes and the achievements for Porgera's education sector. Presented below are the main findings drawn from this study:

Firstly, there has been lack of systematic ongoing support for the education sector. The results of this study showed that although a substantial amount of resources are said to be invested and committed towards the education sector over the years, this has not been the case (Banks, 1997, 2001, 2009, Togolo, 2006 Filer, 1999, 2006, Finlayson, 2001). The study found that that there has been lack of ongoing systematic support provided by key organizations with authority and resources to ensure all efforts and resources are effectively and efficiently invested towards managing, maintaining, improving and enhancing the education sector as an important aspect of local people's integral human development. The research further suggested that there was lack of clear implementation of policies and plans to guide the various supports given to the education sector. This means supports given were either one off or on ad hoc basis from the main stakeholders (PJV and PDA). These actions further led to lack of ownership, coordination and cooperation between and within key stakeholders within Porgera. Although, educational developments are an important aspect of human freedom and the

only form of genuine sustainable development as highlighted by; Friere, (1987), Sen, (2000) and others, this study found that for Porgera mine landowner communities and the education sector, the educational sector has still not reached the standard as yet. Whilst a sustainable mining community is one that realizes the net benefits from mining operations that lasts through the closure of the mine and beyond (M.M.Veiga et al, 2001, p.192). For Porgera education sector this has not been the case. The education sector was found to be in a state of shock, disbelief, and appalling conditions due to years of ongoing failure on the part of the local communities themselves, they key stakeholders and the government in not adequately and systematically supporting Porgera's education sector. Therefore, this study suggested that Porgera's education system appears unsustainable in view of post mining preparations as there seems to be fewer opportunities for improvement.

Secondly, there has been lack of participation, commitment and partnership amongst key stakeholders within the education sector. The results of this study revealed as discussed in chapter six (see section 6.5.3) that there appears to be confusion between the various stakeholders involved within the Porgera education system. Studies conducted by Pacific Agribusiness (1997), Bonnell (1997), Bonnell & Banks (1997) and Mascord (1998) all identified educational issues prior and during the early years of the mine to be in disarray due to local peoples own attitudes and behaviors. Key finding from these studies was the poor parental and community support towards education. This study also found that parental and community support for education has reached very low levels, an attitude described by teachers as "headless" without a second thought for Porgerans' children's future. Furthermore, the study also found that there are lack of clear procedures and process of accessing or delivering educational assistance from key stakeholders in terms of facilities, infrastructure and basic operation of the schools. This means teachers and parents are often left in confusion whether to approach the government, PDA or PJV for development assistance. The study also showed a definite problem of leadership at every level in taking up responsibility to address educational issues. Specifically, local leadership seems to be a major hindrance to growth and sustenance of

the education sector. These were seen as major impediments by Pokawin (1993) and others in which this study also confirmed.

Thirdly, the study found that there has been a mismatch between educational investments and educational outcomes achieved over the years. The results of this study found that educational outcomes as discussed in chapter six (see section 6.6.1) in terms of achievements in the areas of educational infrastructure and facilities and number of qualified local professional graduates produced seems to be less and unaccountable. Firstly, the general outlook, physical conditions of educational facilities and infrastructure showed that schools in Porgera are no different to schools elsewhere. In fact schools in non-mining communities appear to be better than those within Porgera. By now most schools should have well equipped libraries, science labs, science equipment, electricity, computers and other learning facilities. Apparently, these have not been the case for Porgeran educational institutions. The study found this to be an area of grave concern in reference to post mining. Furthermore, the research also found that there are still a huge number of youths and school age children still sprawling on the streets and villages of Porgera. Most schools are closed, and the existing schools cannot accommodate increasing enrolments due to inadequate facilities. Secondly, there appears to be no clear record of scholarship beneficiaries and planned process of supporting students. This has become a real problem. There is a need to know how many students have benefited from PJV scholarships and trainings and also from SML Children's Trust. There should be a record of professionals produced over the years. However, there seems to be no record of such. This is in part due to a lack of direction and control put in place by the local leadership. If these trends continue into the future, the education sector may face problems and Porgera will one day shut down as this clergy foresees:

I don't know but it should be with them only but I am afraid it is only benefiting a few selected elites. This should fund all students within Porgera. For instance one student from Tipinini did first year at University but could not continue this year because of school. Tipinini is within Porgera area and should have been assisted by the SML children's trust fund (CL1).

The clergy's prediction reiterates Julius Chan's statement in the prologue. It is not a matter of lack of resources, money, or expertise but rather a lack of local interest, commitment and participation that needs to be addressed from within the landowners themselves if they are to see the education sector meet the increasing demands before the mine closes. Reflecting on the key research theme the "sustainability of the education sector," due to inefficiencies and inadequacies of the above inputs, the education sector within Porgera is found to be unsustainable. The future of the education sector, including the established institutions through the mine agreements such as the Porgera International School, Porgera High School and the SML children's Trust funds are at the verge of collapse due to weak institutional managements and systematic support given. However there is need for further research and review of Porgera's education sector.

7.3. Options for Further Research

Further research could be conducted in the following areas related to this research on different issues around education within Porgera and see how each research could impact on the overall development, progress and sustainability of the education sector. Firstly, a research into the impact of adult education on youth and adults within Porgera.

Secondly, a study into the impact and sustainability of the SML Children's Trust fund to identify options for further expansion and growth to cater for the future Porgerans would be needed.

Thirdly, a further research on PJVs localization programme on its achievements or non-achievements.

7.4. Recommendations and Call for Action

The following are few suggestions that emerged from the findings of this research and hence, a 'call for action' that maybe taken to address educational development issues within Porgera but not limited to:

- Create incentives to attract qualified teachers including payment of mining allowance on a fortnightly or monthly basis must be looked at seriously.
- Develop a district education coordinating committee that can meet regularly to address educational issues and should comprise of key stakeholders.

- Ensure regular consultative meetings that are inclusive and participatory at regular intervals. This is to enhance communication, maintain relationships and uphold networking amongst key stakeholders.
- Conduct more awareness on the significance of education for landowner parents to wake up and act to meet the realities of an economy that is moving from transitional and traditional economies and lifestyles to globalized and western style lifestyles.
- PDA to give priority to Porgera District Educational Institutions
- Need for appropriate Database to keep track of how many Porgerans have acquired educations and are actually working professional with marketable skills
- Re-establish educational institutions that have closed down or indefinitely suspended such as DODL, CODE center or bring in UPNG External Study Center.
- There is a need to review the SML approach of assisting student's educational scholarships.

7.5. Outlook

Reiterating the research theme “*Is sustainable development a faceless rhetoric*”? It appears in so far as this research is concerned which also holds true from previous studies that educational institutional developments within the Porgera valley have been pathetic and sluggish. The sustainability of educational institutions in terms of infrastructural support, stakeholder's commitment, local people's attitudes and local leader's directions seems to be lacking. The study found that there is a lack of a systematic approach of assisting and improving schools within Porgera. This lack infers that the education sector developments have not been adequately supported. The future aspirations and commitments towards enhancing genuine sustainable developments as found in reports seem to be corporate and government rhetoric and not realities. Should we refer to monumental development initiatives that can put a face to the notion of sustainable development? What is at the heart and core of monumental aspirations is the reality rather than rhetoric. Banks (2006) rightfully argues in this context that, “landowners since then have seen “faces that they do not know”. Will the foreigners (companies) dissolve into thin air leaving nothing but

holes of despair, deprivation and marginalization for the landowner communities? The words of the Lihir Gold landowner Chairman will also ring true that “the government is only hearsay, Multi-national Corporations are foreigners, and it is us the landowners who will still remain (Filer, 2001). Those that will remain are the local people and their livelihoods needs to be sustainable. Education is the only genuine sustainable livelihood medium and therefore should be supported and maintained systematically from the start of the mine to the closure of the mine life and beyond. Without education, no genuine sustainable developments will be achieved. Therefore, when the mountains of desire are gone, local people should not be left in the valley of despair but rather on a route to prosperity and quality life through education as the vehicle to sustainable livelihoods. In doing so through education put a face to sustainable development. Whilst their land and environment have been destroyed, a legacy of well-educated man and women who will build another mine again based on the pillar of education needs to be established. If not a local Porgerans elite’s projections may become true towards the end of mine closure;

The mine is here so things are moving every day, we hear planes landing and taking off, we see trucks of all sorts moving up and down these roads, when the mine closes, these things will stop and tears will be flowing. The reality of our ignorance will dawn on us (LOE).

The study found that despite significant development benefits both (monetary and non-monetary) are made available for local communities developments as set out in various reports, the tangible outputs on the ground are still lacking (Banks 1999, Bonnell, 1999, Filer, 2006 Finlayson, 2002, Togolo, 2006). For instance, this study revealed that the extent and levels of impacts were less obvious at the schools within the mine impact areas. Part of the reason recorded is the ambiguity on the roles and responsibilities of key stakeholders despite having better plans and policies in place. This meant that there is a need to re-identify and differentiate roles respectively so that each stakeholder can be aware of their limitations and extent of influence and responsibilities to the community. Whilst the governments primary interest lies in how much the mines will contribute to its purse through taxes and other benefits, it lacks the audacity to follow up, monitor or even provide support in ensuring local communities are adamantly cared for and compensated for the loss of their land and livelihood. This attitude has been hindering the efforts of the mining companies as the government lacks competency in providing the platform to support their delivery of

much needed services. Therefore, investment in human resource development is deemed desirable as the UNDP report states:

New models of sustainable development are needed to invest in human potential and to create an enabling environment for the full use of human capabilities (UNDP, Human Development Report, 1993).

The need to invest in education and human resources development also rests on all stakeholders including the government. Decisions must be made and resources allocated without any setbacks for the good of communities own future. As such it is significant to access, use and sustain services or infrastructures since those established with mining payments may be difficult to sustain over the longer term (O’Faircheallaigh, 2004, Whitmore, 2006). Therefore, there is a need to identify and deal fairly with all of the affected communities from the very conception of the mine development and for this study Porgera which is important.

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Appendices

Appendix A

Is sustainable development a faceless rhetoric? An assessment of educational developments within the Porgera Mine communities.

CONFIDENTIALITY AGREEMENT

I(Full Name)

Agree to keep confidential all information concerning the research project undertaken with Student Researcher **Bruce Java** in the project “assessment of educational sector developments within Porgera Mine Landowner Communities.

I will not retain or copy any information involving the project nor disclose any information.

Signature:

.....

Date:

.....

Is Sustainable Development a Faceless Rhetoric? An Assessment of Educational Developments within Porgera Mine Landowner Communities.

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded.

I agree/do not agree to the interview being image recorded.

I wish/do not wish to have data placed in an official archive.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: **Date:**

Full Name - printed

Information Sheet

Research Project: “Is Sustainable Development a Faceless Rhetoric? An Assessment of Educational Developments within Porgera Mine Landowner Communities”

Hello, I am Bruce Java, a post graduate student from Papua New Guinea currently studying for the Degree of Master of Philosophy in Development Studies at Massey University, New Zealand. As part of the requirements for that degree, I am currently undertaking a study on the above project. The project partially fulfills the requirement for the degree as it is home country located research which is co-funded by NZAID and Graduate Research funds from the Institute of Development Studies, Massey University. The research seeks to assess educational developments within the Porgera mine landowner communities the progress and the impact of the mine on educational developments and beyond mine closure. It specially seeks to assess stakeholders’ attitude and commitment towards enhancing the education sector with the opportunities presented by the mine in their communities. As such the researcher would kindly ask that you participate in this research at your own will because your contribution is invaluable and very important. Your time and effort will be greatly appreciated by the researcher. Your rights as participants are outline below. If you agree to participate in this research, the University requires that I will formally ask for your consent to participate.

Participant’s Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- *decline to answer any particular question;*
- *withdraw from the study (at any point in the research);*
- *ask any questions about the study at any time during participation;*
- *provide information on the understanding that your name will not be used unless you give specific permission to the researcher;*
- *be given access to a summary of the project findings when it is concluded;*

- Ask for the recorder to be turned off at any time during the interview.

Contact Address in New Zealand:

Bruce Java

2/65 Linton Street, West End,

Palmerstone North 4140, New Zealand

Cell phone: (64) (06) 2539723

Email: bjava1@gmail.com

Should you wish to contact me, use the above address. However, should you have any queries please do not hesitate to contact the following people as they are my supervisors in this study:

Associate Professor Glenn Banks

Institute of Development Studies

School of People, Environment and
Education

Massey University

Private Bag 11 222

Palmerstone North, New Zealand

Phone: (64) 06 3505799 (ext 2983)

Facsimile: (64) 063505737

Email: g.a.banks@massey.ac.pg

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 350 5249, email humanethics@massey.ac.nz.

Dr. Maria Borovnik

Institute of Development Studies

School of People, Environment and
Planning

Massey University

Private Bag 11 222

Palmerstone North, New Zealand

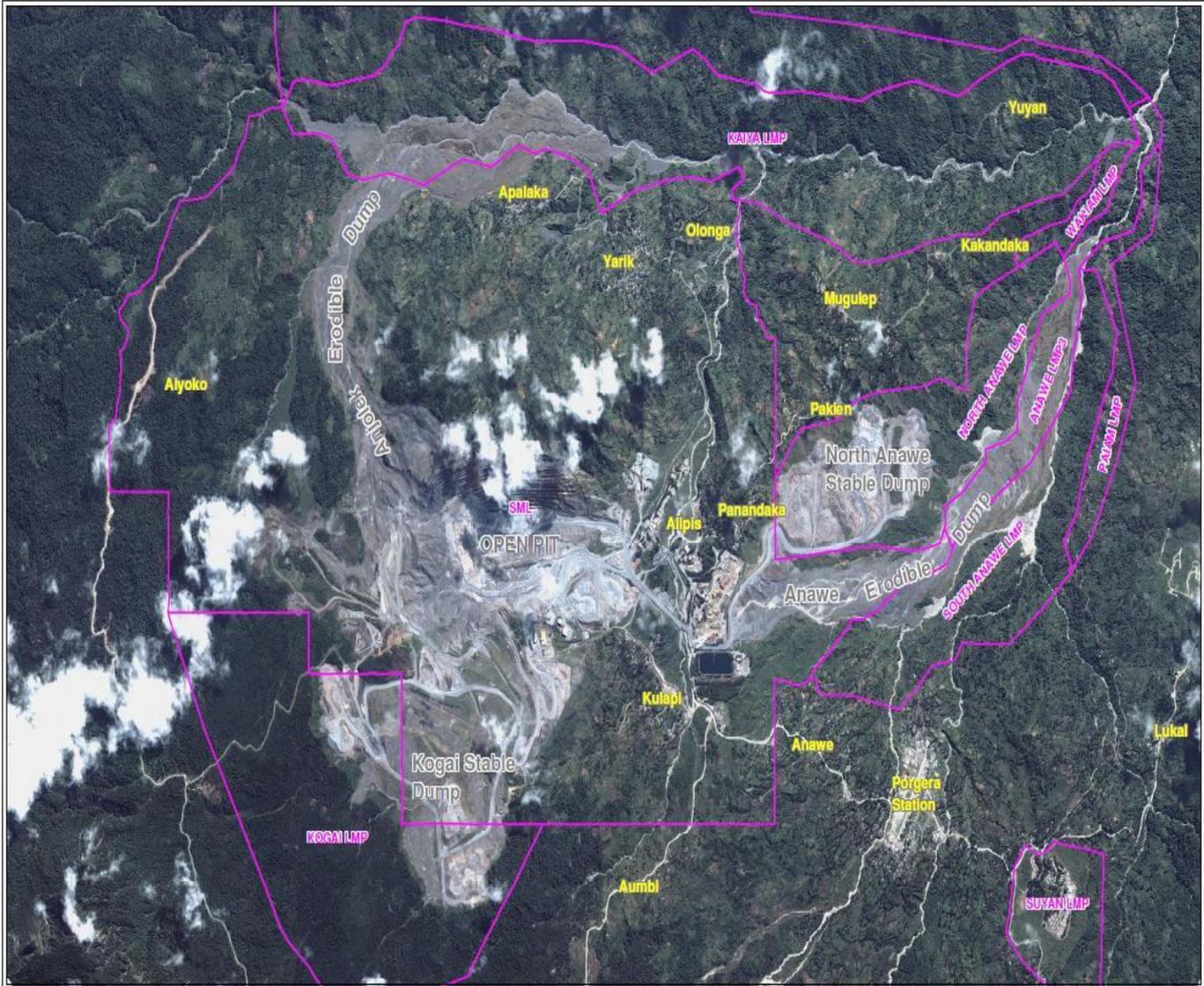
Phone: (64) 063505799 (ext7249)

Facsimile: (64) (06) 3505737

E-mail: m.borovnik@massey.ac.nz

Maps of Porgera

Map 1.



	PORGERA JOINT VENTURE Porgera Gold Mine And Surrounding Localities		Created by: LMR GIS Date: 18th August, 2010 Checked by: B. Welesli Rev: A Map Reg No: Copyright © Porgera Joint Venture	Sheet Size: A4 Landscape Projection: AMG 66 Datum: Zone 54 Locality: Porgera District, Enga Province, PNG Scale:	
	v:\p\m\it\comm_affairs\gis\p_jv_gis\workspace				

Map showing the communities surrounding the Porgera Gold Mine. (Source, PJV 2002)

Generic Semi- Structured Interview Questions.

Date of Interview:

Name:

Position:

Organization

Research Code: PDA1: _____

Section One: Educational Inputs

- A) Do you receive any support from stakeholders?
- B) What types of support do you get?
- C) How often do you get those supports?
- D) Is there a procedure in place where you follow to access support (Formal Request, apply/or stakeholders come for assistance)
- E) Does PDA have a system in place that it uses to respond to requests from landowners and schools within Porgera?
- F) Do you have a monitoring and evaluation system in place to check the use of services/funds/resources you provide?
- G) Is the support/services PDA provides built in for long-term support after mine closure?
- H) Are there any plans in place for Infrastructures and facilities support for schools?
- I) Does the district education have a district plan and policy?
- J) Has there been any follow up, visitation or consultation from key stakeholders?

Section Two: Educational Participation and Partnership

- A) Would you tell me a little bit about landowners attitudes towards educational institutions and the importance of education
- B) Do you see commitment towards the education sector by key stakeholders?
- C) Do leaders (local and organizational) commit and support the education sector?
- D) Do you hold meetings specifically to discuss educational issues amongst the stakeholders

- E) How often do you meet?
- F) Are there any formal agreements or partnership in place between this school and other stakeholders?
- G) How often do key stakeholders meet to discuss development issues and plans within PDA?
- H) Do you think stakeholders have been committed to the partnerships or agreements?

Section Three: Educational Outcomes

This year marks the 20th (1990-2010) year of mine operation.

- A) What is your observation and view on the status of education within Porgera?
- B) Generally, what is your view on the progress of education within Porgera since the mine began production?
- C) Currently, do you think the education sector within Porgera is effective and adequately delivering outputs in terms of standards compared to other schools elsewhere?
- D) What is your perception on the future of the education system within Porgera once the mine is closed and gone?
- E) Do you think enough has been done for the education sector?
- F) What significant infrastructure improvements did PJV provide for the local communities?
- G) Do you think PJV has provided adequate support for the education sector within Porgera?

Section Four: General Educational Issues

Provision of educational services is the role of the state. However, key stakeholders have a part to play in its development, growth and maintenance of the education system.

- A) What is your view on the Porgera Children's Trust Funds operations?
- B) Do you think many SML children have benefited greatly?
- C) Do you think it will sustain itself when the mine is gone?
- D) Is there a record of beneficiaries being kept?
- E) Do SML Children Trust beneficiaries hold any obligations to the Trust?
- F) Are there any plans/options in place to expand the funds after mine closure for sustainability?
- G) Can you tell me about the attitudes of the community towards education and their support?
- H) Has there been any communication between stakeholders?
- I) What are some of the educational sector issues you have seen over the years?

- J) Would you identify some major impacts or achievements in the education sector you have seen?
- K) What is your general observation on the enthusiasm of the landowner parents towards education?

General Comments

Do you have any general comments or suggestions?

Thank you for taking the time out to complete this questionnaire. Your insight and information are valuable to me in making this research possible and will also contribute in making informed decisions about our approaches for improving the educational sector within the Porgera Valley through further collaboration, cooperation and consultation in all our processes.

Thanks you very much for your time. Your help is indeed appreciated

Bruce Java

Student Researcher