

Curtin University Sustainability Policy (CUSP) Institute

Social Impacts of Mining: A Western Australian Community Case Study

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**This thesis is presented for the Degree of
Doctor of Philosophy
of
Curtin University**

October 2012

Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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ABSTRACT

Social impacts of mining is not a new area of study. The intensive resource extraction over the last ten years, together with the societal challenges occurring at a global scale, and the progress of the sustainability agenda, are changing the way mining impacts on local communities. Understanding the social implications of mining operations at the local community level appears to be a challenging research exercise that resembles a complex puzzle.

The study presented in this thesis seeks to explore the complexities and drivers generating social impacts of mining at a local community level and how this relates to community's long-term development. The concept of social sustainability is the primary focus used to examine and interpret the consequences from contemporary mining operations. Studying the rural community of Boddington in south-west Australia, the research links the concepts of social impacts and social sustainability. It reflects on the qualitative changes occurring in the social landscape and analyses the role of mining for long-term community development by examining its contribution against the social implications it evokes.

The findings of this inquiry demonstrate the complex nature of the social impacts caused by mining operations. It identifies three new phenomena impacting the social sustainability prospects of the community, namely the appropriation of human resources, transiency and dependency culture. The case study unveils the inextricable links between the drivers that generate impacts and brings forward the importance of analysing and exploring the dynamic interactions between the various social indicators in order to understand how mining affects local communities.

ACKNOWLEDGEMENTS

Many people have helped me through this journey.

My sincerest gratitude goes to my supervisor, Professor Dora Marinova for her patience, enthusiasm, encouragement and support, for always making herself available when I needed help.

I want to give my special thanks to Professor Fiona McKenzie and Dr. Aileen Hoath from the Curtin Graduate School of Business, who were always willing to allocate time for a chat and help me clear my ideas.

All Boddington residents who devoted their personal time to participate in my research deserve special thanks. Without their help this study would not have been possible. I want to also acknowledge the two mining companies operating in the area for kindly providing information.

I owe a lot to my friends Radost and Dimitar who made me believe in myself and encouraged me throughout this journey.

My CUSP friends and peers also deserve to be acknowledged, with a special mention of Roman Trubka, Susie Waller, Annie Matan and Vanessa Rauland.

My debt to my family for all their love, support and understanding is just too great to be acknowledged here.

Svetla Petrova

Perth, Western Australia

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ACRONYMS

ABS	Australian Bureau of Statistics
CCI	Corporate Community Investment
CSI	Corporate Social Investments
CSP	Corporate social performance
CSR	Corporate Social Responsibility
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DIAC	Department of immigration and citizenship
DIDO	Drive-in/Drive –out
DJSI	Dow Jones Sustainability Index
EPBC	Environment Protection and Biodiversity Conservation
EIA	Environmental Impact Assessment
EBRD	European Bank for Reconstruction and Development
FIFO	Fly-in/Fly-out
GMI	Global Mining Initiative
GRI	Global Reporting Initiative
IDB	Inter-American Development Bank
IAIA	International Association for Impact Assessment
ICMM	International Council of Mining and Minerals
IFC	International Finance Corporation
ICGPSIA	Inter-organisational Committee on Guidelines and Principles for Social Impacts Assessment
LGA	Local Government Areas
WAPC	Western Australian Planning Commission
MCA	Minerals Council of Australia
MMSD	Mining, Minerals and Sustainable Development
NEPA	National Environmental Policy Act
OECD	Organisation for Economic Co-operation and Development
REIWA	Real Estate Institute of Western Australia
RTO	Registered Training Organisations
SIA	Social Impact Assessment

SIMP	Social Impact Management Plans
SPSS	Statistical Package for Social Sciences
SS	Social Sustainability
TAFE	Technical and Further Education
TBL	Triple-Bottom Line
UN	United Nations
WA	Western Australian
WAPC	Western Australian Planning Commission
WBCSD	World Business Council for Sustainable Development

CHAPTER ONE - INTRODUCTION

1.1. Research puzzle

Mining has had a considerable role in shaping human development not only from a technological perspective, but it has also significantly impacted on neighbouring and hosting communities where its operations have been carried out. The attention towards the social dimensions of mining has increased significantly in the last 10 years. Given the progression of sustainability, the way the mining industry impacts on local communities where it operates and how communities see these impacts have been seriously challenged. Widespread community demands for relevant, direct and sustainable benefits from mineral wealth have been identified as a relatively recent phenomenon (MMSD, 2002) to which companies have to respond in a suitable and satisfying fashion. The whole process of incorporating sustainability views into companies' policies influenced a significant change in how the industry operates and impacts on local communities and respectively how social impacts are generated. This thesis seeks to explore and understand the social impacts of contemporary mining operations and the associated aftermaths for the long-term development at a local community level in a developed country context.

Many mining operations, especially in Australia appear in remote locations away from populated areas and established communities. However, company towns, typical for the mining industry in the 1970s have become history. Today, mining companies are not willing to build communities from scratch, they rather prefer to settle around established communities and build temporary mining villages to accommodate their workforce (McKenzie, 2011). The premise for this research is the fact that resource developments are increasingly likely to appear in very fragile and complex environments, including closer to already existing communities, as the 'convenient' by location resources are reaching depletion (Solomon, Katz, & Lovel, 2008). There are many examples of this in Western Australia – Leonora, Laverton, Leinster, Mt. Magnet, Ravensthorpe etc.

This research represents an exploratory study of a community located in the Peel region of Western Australia, in order to analyse the complexities of the social impacts of mining at a local community level. Considered to be traditionally agricultural, in the last three decades it is also the host of two mining operations. Such a community is quite unique for Western Australia where the majority of the contemporary mining settlements have been established

because of mining. Their existence has been linked to the availability of natural resources in the area with mining being the main trigger for development.

The social impacts of mining are not a new area of academic interest. In the 1970s, the impact of mining activities on communities attracted research interest post-factum in the attempt to explain and understand changes that have already occurred within the social fabric (Dennis, Henriques, & Slaughter, 1969 ; Lucas, 1971; Bulmer 1978). An emblematic example of this is the sociological analysis of mining communities in Yorkshire, UK. Dennis et al. (1969) presented powerful examples of the impact of mining on the communities' political and social organisation which later provoked social structure changes and affected the process of class formation. In a study of Canadian resource communities, Lucas (1971) analysed the stages associated with the life cycle of resource development and community life closely dependent on these industries. These studies framed the area of social impact but they are only relevant to single industry towns.

With the emergence of the Social Impact Assessment (SIA) field in the 1980s, the scholarly interest shifted towards foreseeing potential impacts of mining (Freudenburg, 1984; Armour, 1990; Freudenburg & Gramling, 1994; Burdge & Vanclay, 1996; Becker & Vancay, 2003; among many others). Australia with its rapid and aggressive mining activities also recently attracted significant academic interest (Storey, 2001; Beach, Brereton, & Cliff, 2003; Evans, Brereton, & Joy, 2007; Pini, Previte & Haslam-McKenzie, 2007; Rolfe, Petkova, Lockie & Ivanova, 2007; Esteves, 2008a; Lockie, Franettovich, Petkova-Timmer, Rolfe & Ivanova, 2009; McKenzie, 2009; Petkova-Timmer, Lockie, Rolfe & Ivanova, 2009; Lozeva, & Marinova, 2010; Cheshire, Everingham & Pattenden, 2011; Hajkowicz, Heyenga & Moffat, 2011; Carrington & Pereira, 2011; Stehlik, Browne, & Buckley, 2011; Brereton, & Pattenden, 2007; Lawrie, Tonts & Plummer, 2011; Tonts, Plummer, & Lawrie, 2011). A major aspect that emerged is the increasing reliance of companies operating in Australia on non-residential workforce (O'Connor & Kershaw, 1999; Storey, 2001; Beach et al., 2003; Rolfe et al., 2007; Petkova-Timmer et al. 2009; McKenzie 2011; Carrington & Pereira, 2011). Issues identified include: distress within existing local communities with the influx of predominantly male population (Lozeva & Marinova, 2010); pressure on housing availability and serious burden on local infrastructure and service availabilities (Haslam-MacKenzie 2008; Lockie et al, 2009); implications for indigenous people (Howitt, 2001; O'Faircheallaigh, 2009).

The bulk of the Australian research focuses on the pressure generated by mining, including service provision, infrastructure and housing availability (Rolfe et al., 2007; MacKenzie et al., 2008), fly-in fly-out work arrangements (Storey, 2001; McKenzie, 2011) and socio-economic wellbeing (Hajkowicz et al., 2011; Lawrie et al. 2011; Tonts, Plummer et al., 2011). The lack of facilities and pressure on infrastructure impact on local employers' capacity to attract and retain employees and thus hinder the development of the local business environment (Lockie et al., 2009; Tonts, 2010). All these are seen as challenges for existing communities but there are also many benefits. Lawrie et al. (2011) argue that the rapid expansion of the economy in resource boom towns leads to improved socio-economic conditions and reduction in welfare dependence.

In general, social issues, unlike economic ones, are by nature imprecise, unclear and difficult to define and measure. The social impacts of mining, the consequences a mining operation has on human population, may manifest themselves at the local, regional, state, national and even global level and may vary, depending on the community's nature, structure and characteristics (Vanclay, 2002). Furthermore, they are not just an isolated phenomenon that a mining operation brings into a host community. Neither are they a product of a unique set of local circumstances (Burdge, 1998; Lockie, Momtaz & Taylor, 1999; Becker & Vanclay, 2003). The manifestation of the social impacts of mining cannot be isolated from the bigger global development perspectives, governance trends and companies' policies and procedures. To a great extent, the transformations and changes occurring within mining communities reflect what is happening on a global scale in regards to global markets, commodity prices and the prosperity or decline of other industries such as agriculture, forestry, and fishery. Still, at the end, always remains the question as to how communities adapt to the transformations and changes to which they are exposed and whether they are able to sustain their own future.

It is incorrect to assess the impacts of mining as black or white. What needs to be done is understand the triggered qualitative changes in the local social landscape that affect on community social sustainability. In this thesis I argue that a sustainability perspective provides a better lens to comprehend what happens at the local level.

Understanding the social impacts at a community level triggered by mining is a challenging exercise that resembles a complex puzzle. To be able to distinguish, understand and manage them, all pieces of the puzzle need to be put into place. This thesis should be read as an attempt to explore the complexities of such a puzzle and identify the drivers that contribute

towards generating the social impacts of mining and how this affects community sustainability pathways.

1.2. Research context

A leading thread throughout this thesis is the sustainability perspective with a social focus. The social dimensions of sustainable development are important on their own; however what makes them real is the interaction with the other aspects of sustainability (Omann & Spangenberg, 2002). Therefore, it is unavoidable for the text to zigzag between the three pillars of sustainability – environmental, economic and social. Its main argument is shaped by the two interrelated reference marks outlined below – the social sustainability concept and the shift of the mining and metals industry towards sustainability.

The new development paradigm and social sustainability

The dynamic social and environmental transformations which societies have been facing in the last decades has influenced a significant shift in the way long-term future development is approached. In the late 1980's and early 1990's it was acknowledged at a wide international scale that the progress of humanity should be oriented towards sustainable development - development that *“meets the needs of the present without compromising the ability of future generations to meet their own needs”* (United Nations, 1987, p. 11). This development, as outlined in the 2002 Johannesburg Declaration on Sustainable Development (UN, 2002), requires a confluence and interdependence of the three constituent and mutually reinforcing pillars of sustainability - economic, environmental and social. Sustainability has become a key word for a political discourse committed to quality of life, environmental protection and obligations to future generations (Becker, Jahn, Stiess & Wehling, 1997). This new development perspective has inspired a shift from the ‘problems of the day’ towards a new approach incorporating visions for the future. The shift in the development perspective boosted the attention on social impacts and consequently brought them to the same level of importance as the environmental and economic prosperity. This made the social aspects of sustainability an important and defining dimension of sustainable development. Hence, the inclusion of sustainability in future development perspectives towards sustainability has brought to life the new approach toward social issues, known as the concept of social sustainability.

The term “social sustainability” was first used during the Istanbul HABITAT II – City Summit in 1996. Social sustainability is vague to define, and there is not yet a clear theoretical concept as to what it means (Littig & Griessler, 2005). Moreover, being elusive in nature, it is grounded not on theory but rather on practical understandings and current political agendas (Littig & Griessler, 2005). Becker et al. (1997) argue that a sustainability vision about the contemporary world is marked by the sign of change and emphasize the need to focus on the dynamic process of societal changes, which puts forward the diversity of social development paths depending on the particular cultural and/or political as well as ecological starting point. The fundamentals of the social sustainability concept will be further discussed in Chapter 3, however, it should be noted here that the lack of clear and consistent theory about social sustainability in combination with its roots in praxis pre-determines the complex mix of analysis between theoretical, methodological and practical perspectives.

Mining’s shift towards sustainability

The conceptual shift in the future development directions towards sustainability, provoked a significant change in the way mining as a business operates and engages with communities. Shortly after the 1992 Rio Earth Summit, the industry realized the need that it has to respond to the challenges of sustainable development. As a result the Global Mining Initiative (GMI), initiated by nine of the largest mining and metal companies, was launched in 1999. The GMI was closely associated with the World Business Council for Sustainable Development’s Mining and Minerals Working Group, which established the Mining, Minerals and Sustainable Development (MMSD) project in 2000. The key objective of the MMSD project was to identify the role that the mining and mineral sector can play in the transition to sustainable development. Together with the establishment of the International Council of Mining and Minerals (ICMM) in 2001, the industry registered its recognition that a substantial cultural shift in the way it operates was needed in order to prosper in the future and to be able to respond and adapt to changes and demands in contemporary society (MMSD, 2002). One of the key principles outlined by the MMSD project and ICMM is the importance of taking a long-term strategic approach in order to respond to the new sustainability principles (MMSD, 2002). Therefore, the industry established a new value based approach oriented toward positive contribution to sustainability rather than mitigating the adverse impacts (Hodge, 2004).

However, it is more difficult to demonstrate positive contribution than to identify and mitigate impacts, as traditional social impact assessment does (Gibson, 2006). In order to respond to these challenges, the mining and mineral's industry elaborated practical principles, which aimed to be compatible with the sustainability concepts and to serve as a guideline as to how the contribution of this sector over the long-term should be approached. Seven key components, outlining major areas related to human involvement were identified focusing namely on engagement, people, environment, economy, traditional and non-market activities, institutional arrangements and governance, and synthesis and continuous learning (MMSD, 2002a).

In his speech at the Johannesburg Summit on Sustainable Development in 2002, the then UN Secretary Kofi Annan remarked:

“We now understand that both business and society stand to benefit from working together. And more and more we are realizing that this is only by mobilizing the corporate sector that we can make a significant progress.

The corporate sector has the finances, the technology and the management to make all this happen. Corporate sector need not wait for governments to take decisions for them to take initiatives.¹”

This explicitly stated the role business could play for sustainability. Companies should no longer just respond to the challenges that reshape the world today, they should take the lead in meeting the needs of development. Further in his speech Kofi Annan also emphasized the need for governments and business to cooperate and calling it ‘the era of partnership’. Though the mining industry is like any other industry, its impacts on societies and communities can be deeper, as it affects not only the environment but also significantly influences the fundamentals of the social environment where it is carried out. Nowadays, mining is expected to have a positive and proactive approach towards environmental and social issues, which goes far beyond the formal requirements. It is required to play a much bigger role in supporting and enhancing the quality of life in the communities where it operates ensuring transparency in its policy decisions and performance. For the first time the MMSD project went beyond the usual

¹ Speech by the Secretar-General Kofi Annan at “Business Day”, organised by Business Action for Sustainable Development, in Johannesburg on 1 September 2002. Retrieved from: http://basd.free.fr/docs/speeches/20020901_annan.html

argument whether mining is sustainable and raised the question as to how can mining contribute to sustainability.

The cultural shift from mitigation towards contribution to which the mining industry is already committed, the acknowledgement of the importance of sustainable development, along with the self-regulated and conscientious business ethics, promoting public interest regardless of the established legal framework, enhanced Corporate Social Investments (CSI), as part of the Corporate Social Responsibility (CSR) practices. The progress the industry has made promoted other instruments and mechanisms, such as corporate community development plans and investments, with a primarily local focus that further influence social well-being, and consequently change the existing social fabric aspiring to contribute to sustainable development. Thus, CSR is becoming a feature of the new social governance. Moon (2007) argues that governments today are facing challenges in meeting societal expectations and have an interest in CSR to assist them in achieving their governing tasks. This provides a greater role for CSR in governance and brings new ways for business to engage with society.

The complex and manyfold relationships between the social impacts of mining, social sustainability and corporate social responsibility in the contemporary world are explored later in Chapter 2 and 3. With visions for the future incorporated in the planning agenda and a sustainability perspective for development, it is no longer enough for social impacts to be registered and then targeted with mitigation strategies and tactics. The new development perspective influences the approach to contribution taken up by the industry. It furthers corporate social responsibility's role in governance and, adds a new level in the way social impacts are generated and emphasises their implications for long-term development.

These transition processes lead to a series of criticisms that challenge the way social impacts are tackled. On a practical level, in most of the cases social impacts are identified at the approval stage of the projects, as part of the normative requirements (Gibson, 2006). Quite often, this is done using qualitative methods centred around demographics, employment, services and facilities provision (Colantonio, 2007). The initial scoping of social impacts might be enough for a mitigation approach, focused on addressing any adverse impacts, and based on 'fixing the damages' practices, but is not fully capable to serve the long-term development visions about contributing and enhancing local community life. The process of investigating and identifying social impacts should also take into consideration their multi-

dimensional nature, attempt to go beyond mitigating and be more strategically oriented (Taylor, Goodrich, Fitzgerald, & McClintock, 2003; Colantonio, 2007; Lockie, Franetovich, Sharma & Rolfe, 2008; Esteves & Vanclay, 2009). As Lockie et al (1999) argue social impacts are not just out there waiting to be discovered, they are constantly generated and being dependant on the various processes occurring within the community. Hence, social impacts, changes and transformations triggered by mining operations are not only caused by mining itself. They are evoked by a constellation of factors which in combination with mining activities in a particular region or location result in positive and/or negative impacts, that speed up or delay long-term development.

Understanding and considering these crucial factors can provide essential information that fits into the research puzzle and helps to find possible answers as well as visions for the future sustainability of a mining community. In this thesis, using a particular Western Australian example, I explore the social transformations triggered in local communities, by mining activities and how they relate to social sustainability.

1.3. Research question and objectives

Two main research questions underlying this investigation are:

- 1) What are the social impacts and transformations triggered by mining activities at a local community level?
- 2) What is the role of mining for social sustainability?

These questions require an exploratory approach, which in this particular study is reflected through the prism of the social sustainability concept. To answer the key inquiry the thesis outlines two main areas of study – community and company/mining operation. The main area of inquiry can be broken down into a number of sub-questions that cover the two main segments of the research (community and company/industry) and bring forth yet another host of related inquiries. Each sub-question requires a different approach in order to be explored and provides alternative answers to help put together the research puzzle (see Chapter 4 for further explanation of the research methodology)

For the purpose of this study, **community** is conceptualised and understood as a group of interacting people and structures sharing a common environment and geographic location. Within the community realm I examine the following matters:

- Community views and perceptions on what social impacts of mining for their particular place are;
- community's cohesion and stability; community's expectations in regards to development opportunities and improvement of quality of life that can be influenced by the presence of mining;
- community's capacity and mechanisms for contributing to economic diversification and its intentions and capabilities to operationalise any already provided advantages;
- as well as its degree of freedom and participation in the communal life, i.e. the extent to which people are able to participate in decisions that affect their lives, the level of democratization and public participation in decision-making that is taking place.

Company (mining operations) is defined as a key actor introducing social change and contributing to the emergence of social impacts and changes that result in social transformations. Within the company realm, I explore:

- The contribution mechanisms a company develops and carries out within its operations, and
- the outcomes of this contribution in regards to overall community well-being and long-term development.

The following objectives are addressed in this thesis:

- Exploring the complexities and the drivers generating the social impacts of mining within a Western Australian case study;
- analysing the role of mining for social sustainability and understanding the impact of mining in regards to long-term community development;
- outlining and providing understandings about the possible relations between social impacts and social sustainability in a mining context.

The research is based on a case study technique and examines a rural community in Western Australia neighbouring two mining operations – a long-term existing small scale mine and a recently re-opened large scale mining operation (see overview of the case study in Chapter 5). The case study technique allows the complexity of the phenomenon in this contemporary mining community and its real-life context to be explored (see justification and overview of the methodology in Chapter 4)

1.4. Why is this study needed?

Several key arguments justify the research. A CSIRO (Commonwealth Scientific and Industrial Research Organisation) report on the social dimensions of mining in Australia (Solomon, Katz & Lovel, 2007), published in 2007, underlines the need for better understandings of the relative role of industry in community and regional development. This study responds to this call for further research.

Second, the thesis proposes an alternative approach towards the social impacts of mining by putting together theories about social sustainability, social capital and corporate social responsibility. The existing literature on social impacts of mining focuses predominantly on service provision, economic benefits and environmental impacts and does not report impacts on the social fabric. The thesis provides an alternative perspective, based on a critical sociological approach, adding to the already existing service-based approach in the interpretation and understanding of social impacts. The research also gives insights about the Corporate Social Investment (CSI) undertaken by the industry and reflects on the impact it has in relation to long-term sustainable community development.

Third, the research aims at providing a better understanding of the pathways which lead to certain social impacts and links existing knowledge on social impacts and the contribution of mining to sustainability. This furthers the understanding of the meaning of social impacts and the way they are caused. By unveiling the conditions and constellations of factors through which impacts appear and affect humans, the findings could help social scientists and sustainability practitioners as well as governments and mining companies to predict, expect and address better the social impacts of mining operations at a local community level.

Moreover, the findings make it possible to exemplify the phenomenon of the contemporary mining community, which adds to better understanding of mining related issues and community development planning.

1.5. Chapter outline

The thesis is divided into eight chapters. The introduction (**Chapter 1**) outlines the research puzzle and specifies the research context; frames the scope and defines the research question and objectives.

Chapter 2 frames the overall context of the study. It discusses the positioning of the research within the field of social impact assessment studies and extrapolates the conceptual approaches; types of impacts and their construction. The chapter brings forward the interconnectedness, contextuality, subjectivity and time related dimensions of the social impacts and emphasises the various processes that may influence their occurrence.

Following the conceptual positioning of the research and outlinking on the nature and origin of social impacts, in **Chapter 3** I develop the theoretical framework for the methodological approach adopted in the study. By taking the lens of social sustainability, and emphasising the dynamic aspect of the concept and its practical roots, two key related concepts that play a key role in the way social impacts resonate within the local environment are extrapolated, namely social capital and corporate social responsibility. Social capital is defined as a qualitative, intrinsic attribute of the local social landscape which plays a key role for long-term development. CSR is interpreted as the practical dimension of social sustainability through a business perspective that has the potential to impact on long-term development.

Chapter 4 provides the methodological framework which incorporates the main insights of the theoretical outline and proposes a possible approach for linking the reviewed concepts (i.e. social sustainability, social capital and corporate social responsibility) that leads to better understanding of the social impacts of mining related to long-term development. It outlines the research philosophy and strategy and justifies the design of the study together with the methods employed in collecting information.

The case study is presented in **Chapter 5**. I first, introduce the specifics of the Australian and more particularly the Western Australian mining context and then proceed with a thick description of the Boddington case study. By exploring the historical and current dynamics of the local community, the key social change processes and areas experiencing social change are identified, which are further perused in **Chapter 6 and 7**.

The theories about social impacts and social sustainability are linked to the Boddington case study in **Chapter 6 and 7**. **Chapter 6** explores both positive and negative aspects of mining and reflects on community understandings about and experience with the social impacts of mining in the studied area by analysing the findings from both primarily and secondary sources. Following through the discussion are key areas of change putting pressure on the local social environment and impacting on social sustainability. Further, the analysis indicates

three new phenomena, impacting on a socially sustainable future, namely appropriation of human resources, transiency and dependency culture/mentality.

Chapter 7 discusses the contribution of mining to community's sustainability. By linking social impacts and social change processes, identified earlier (in Chapters 5 and 6) to the contribution made by mining at a local community level, the analysis weighs the contribution against the social impacts experienced by the community.

Finally, **Chapter 8** draws together the main implications of the study and summarises the empirical and theoretical contribution of the research and it also identifies areas and themes for further investigation.

CHAPTER TWO – SOCIAL IMPACT ASSESSMENT AND SOCIAL IMPACTS

2.1. Introduction - Social dimensions of mining

The social dimensions of mining incorporate various different perspectives that create and shape social landscapes, which started to attract a lot of attention in the last 10 years. The way the mining industry impacts on the local communities in which it operates, and the way communities see the impact of mining have been scrutinized and existing preconceived ideas seriously challenged. An important shift is the reflection of the industry itself acknowledging that it has to take a new approach towards social issues and pay more attention to the social aspects of its operations. During this last decade the way social impacts of mining have been understood has changed towards accepting more responsibility based not only on mitigating the impacts but also considering enhancement of its contribution to local communities (Esteves & Vanclay, 2009, see also Global Reporting Initiative (GRI), United Nations Global Compact, the International Council on Mining and Minerals (ICMM) Sustainable Development Framework and the Australian minerals industry framework for sustainable development Enduring Value and International Finance Corporation (IFC) Performance standards, the Equator Principles). Companies have started to realize that investing efforts and resources to understand community expectations and distribution of impacts and benefits over the long-term, will not only secure support at a local and government level (namely their social and political licence to operate) but will also add value and save time and resources to their own business. Furthermore, proponents of the business case for sustainable development believe that voluntary measures to enhance social impacts will have a positive effect on profits over the medium to long-term (WBCSD, 2002). The whole process of incorporating sustainability views into the development perspectives and company policies, have influenced a significant change in the way the mining industry operates and impacts on local communities, and respectively on how social impacts are generated.

In the following two chapters, I discuss these social impacts through a sociological point of view incorporating a number of concepts that play a significant role in shaping new perspectives and consequently understandings of the subject matter. The discussion begins with an overview of social impacts triggered by resource developments defined in the literature as social impact assessment studies (Section 2.2). Following the brief history of how and why the field has emerged in the academic and practical realm of social sciences, I define the main tasks and purpose of social impact assessment. This leads to a discussion about the

conceptual approaches used in social impact assessment and critiques of their applications. Then I continue by reflecting on the various types and manifestations of social impacts studied within the framework of social impact assessment (Section 2.3). This chapter ends with an outline of the conceptual pathways for constructing social impacts.

2.2. Social impact assessment

The field of sociological studies, including the social impacts of mining, encompasses a range of paradigms and approaches (CSIRO, 2007). Sociology studies mainly focus on how people are organised in a society, either as individuals or members of institutions, groups, organisations, communities etc. and how they interact between themselves and with each other. The study of these relations, as Freudenburg (1986) acknowledges, is ancient; however, the analysis of social impacts as a response to society's increasing concerns about the environment and the implications of technologies and economic development is a relatively recent phenomenon. In the last three decades, sociological research related to the social dimensions of the mineral industry has mainly focused on, and has been dominated by, the field of social impact assessment (Vanclay, 2002; Solomon et al., 2007). Hence, the definitions and understandings of the social impacts of mining have been to a great extent interpreted within this paradigm.

The section to follow outlines the field of Social Impacts Assessment (SIA) as an academic and conceptual framework and also emphasises its practical aspect. Within this context I examine related concepts about social impacts developed within the SIA paradigm, in order to later shed light on the process of how mining impacts on local communities.

Brief history of Social impact assessment

Studies of social impacts have a relatively long tradition in sociology and other social sciences, such as political economy, public policy or community development. Social impact studies in the form of assessments related to anticipated, predicted and monitored social consequences of resource development projects emerged in the early 1970s. It is this focus on predicting and being able to control the planning and decision-making of development that separates social impact assessment from other social research fields, which tend to concentrate on explanatory and causal analysis. Freudenburg (1986) identifies three main characteristics of the SIA field that distinguish it from the conventional sociological studies of social impacts. According to him, what makes the difference is the fact that; (1) SIA is a

prospective rather than retrospective planning tool which tends to focus on (2) consequences of technological developments that cause alterations to the bio-physical environment; as well as (3) unintended consequences of developments that are often carried out by profit-oriented entities. While conventional sociological studies of social impacts try to find explanation about past events, SIA studies aim to provide insight about present and future oriented matters.

It was not until 1969 that the analysis of impacts on the human environment which emerge as a result from resource development projects were formalized with the adoption of the National Environmental Policy Act (NEPA 1969) in the United States. This came as a recognition that the alterations in the physical environment and the ecosystems also influence the cultural and social fabric of human populations (Gramling & Freudenburg, 1992; Burdge & Vanclay, 1996). The act itself required social aspects to be considered in the Environmental Impact Assessment carried out as part of the decision-making process for project approvals. In fact, this step forward also set the basis for the development of the Social Impact Assessment field itself. According to many commentators (Becker & Vanclay, 2003; Burdge & Vanclay, 1996; Becker et al., 1997) the term “social impact assessment” was used for the first time in 1973, during the process of the development of the Alaskan pipeline from Prudhoe Bay on the Arctic Sea to Valdez on Prince William Sound, to refer to the probable changes in indigenous culture due to the massive project. Another key milestone which attracted attention towards the social aspects of project development was the Canadian federal government inquiry into the proposed Mackenzie Valley gas pipeline from the Yukon Territory to Alberta (1974-1978). This was the first major Environmental Impact Assessment precedent to overturn a project development, due to its failure to consider the social impacts on a local tribe. Craig (1990) argues, that the field of SIA emerged as a result of these two major legislative and policy initiatives. In reality it grew out of the need to apply the knowledge and methodology of sociology and other social sciences in order to predict the social effects of environmental alterations by development projects (Burdge & Vanclay, 1996). The nature of such projects varies from other industrial or agricultural developments because of: (1) size – they tend to be large projects; (2) need for drastic changes in the previous use patterns of the land; and (3) technology intensity – they rely heavily on the use of technology.

The United States and Canada had a leading role in the formation of the Social Impact Assessment field and the study of social changes resulting from development projects. However, this field remained in the shadow of EIA up until 1982, when the first international conference on SIA was held in Vancouver, Canada. This major event, gave academic and political credibility to the need for more research and new methodologies in the area. The activities of the conference were later combined with the efforts of the International Association of Impact Assessment, established in Toronto, Canada in 1981. Since the inclusion of the social impact considerations of projects and policies in the legislative frameworks of U.S (NEPA 1969) and Canada (Environmental Assessment and Review Process 1973), SIA has been progressively introduced in many other countries around the world, including Australia, New Zealand, and more recently Europe.

By the mid-1990s, both the World Bank and International Finance Corporation (IFC) had established social review units, promoting the adoption of SIA principles for public and private sector projects (Francis & Jacobs, 1999). Other development banks, some private sector corporations, regional donor organisations and non-government organisations (NGOs) have also incorporated SIA-like processes into their project appraisal procedures, and many national governments have made SIA a mandatory activity for project proposals (Joyce & MacFarlane, 2001).

The adoption of NEPA served as a catalyst and a model for similar legislations around the world (Gilpin, 1995). New Zealand had a SIA working group established in 1984, which in 1990 was transformed into the Social Impact Assessment Association (Burdge & Vanclay, 1998). Europe was less interested in SIA up until the late 1980s. By comparison, in Australia, considerations about social impacts were incorporated into the EIA process, managed through the environmental legislation. The Commonwealth standards about the process and quality of resource developments are set with the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. Furthermore, each Australian State has its own legislative and regulatory framework, under which social and economic impacts are considered and examined. Despite these provisions, what exactly are the social dimensions and how they should be considered and addressed are not explicitly stated.

The formal use of SIA in Australia has been a subject to political views and arrangements (Vanclay & Bronstein, 1995). As Howitt (1989) argues, even though SIA is statutory, it has been treated as an implicit rather than explicit requirement of the EIA. Currently, resource

exploration, development and extraction is the key industry sector driving the Australian economy, but Queensland is the only state that has established formal policies and regulations regarding its social aspects. Social Impact Management Plans (SIMP) in Queensland are now required for all major resource projects and SIA is a formal document (not incorporated within the EIA) of approval and part of the agreement. Western Australia in comparison, has a strongly established, strict EIA process, but does not have legal requirements for SIA and it is left to the company's will to do so (Burdge & Taylor, 2012).

It appears that the process of carrying out social impact assessments and understanding social impacts from resource development projects is largely influenced by international standards and reporting initiatives set by international bodies, such as the International Association of Impact Assessment (IAIA), World Bank, International Finance Corporation (IFC), European Bank for Reconstruction and Development (EBRD), United Nations Global Compact, Global Reporting Initiative (GRI), Dow Jones Sustainability Index (DJSI), and industry organisations such as the International Council on Mining and Minerals (ICMM) and Minerals Council of Australia (MCA), rather than statutory regulations. Principles and policies adopted by the aforementioned organisations will be discussed in details further in Chapter 3.

Purpose and definitions of SIA

The development of Social Impact Assessment came in response to the environmental legislation that successfully incorporated science in policy-making and into the political decision-making process (Freudenburg, 1986). However, in its early days, SIA was mainly used as a tool serving the needs of statutory frameworks. Following the raising concerns about the process of social change, the U.S government gathered together eminent scholars from the American social sciences community along with professional organisations, with the task to establish a set of guidelines and principles for SIA. As a result in 1994 the Inter-organisational Committee on Guidelines and Principles for Social Impacts Assessment (ICGPSIA) released a milestone document influencing the future directions of SIA. Even though the document was produced to serve as a guideline under the U.S regulatory framework, it provided clear principles for SIA that could be made applicable under any jurisdiction (Vanclay & Bronstein, 1995; Burdge & Vanclay, 1996). They were further updated in 2003, which was the same year, when after extensive consultations with professionals and academics in the field, the International Association for Impact Assessment (IAIA) released the International Principles for SIA. The latter was aimed to serve as:

'a statement of core values of the SIA community together with a set of principles to guide SIA practice and the consideration of 'the social' in environmental impact assessment generally.' (Vanclay, 2003, p.5)

Definitions of SIA

Social Impact Assessment has to deal with a diverse range of phenomena – from attitudes and values to social structure, population and social change; its primary focus is the analysis of a community's social structure. It uses methods and theories from sociology, in order to understand how individuals, communities and organisations respond to change, how they perceive impacts and how different social actors within a particular environment relate to each other. According to Rickson et al. (Rickson, Western & Burdge, 1990), to achieve this SIA uses primarily two main areas of sociological theory and research – community studies and organisational analysis. Fundamentally, SIA focuses on local communities as they are the main entity experiencing the costs and benefits of social change.

Within the broad academic literature, the field of SIA is considered to be predominantly a field of practice (Craig, 1990; Rickson et al., 1990; Burdge, 1996). Many authors see its initial task to identify potential social consequences of new development projects and policies and thus to support and assist the decision-making process (see Freudenburg, 1986; Craig, 1990; Vanclay & Bronstein, 1995; Burdge & Vanclay, 1996; Barrow, 1997; Burdge, 1998; Becker & Vanclay, 2003; Vanclay, 2006). Bowles and Cook (1981) argue that the key objectives of SIA are to 'anticipate' future consequences of change and to help develop policies for managing the consequences resulting from that change. Wolf (1983) defines it as a study of potential effects of natural physical phenomena, activities of government and business, or of any succession of events on specific groups of people. The US Inter-organisational Committee on Guidelines and Principles for Social Impact Assessment (ICGPSIA) emphasizes the projective aspect of SIA – "efforts to assess or estimate, *in advance*, the social consequences that are likely to follow from specific policy actions" (ICGPSIA, 1994). Burdge and Vanclay (Burdge & Vanclay, 1996) understand it as a '*process*' that assesses or estimates, in advance, the social consequences that are likely to follow from specific policy action resulting in project development. In fact, the latter view has been dominating the SIA definitions and understandings, effectively putting the other two tasks of monitoring and mitigating in the background (Lockie et al., 1999; Colantonio, 2011).

Craig (1990) considers SIA to be a ‘localised study of social change’. She proposes that the most useful approach to understand SIA and the process is to treat it as a broad field of applied policy analysis. Freudenberg (1986) sees it as a hybrid of social sciences and a component of the policy making process, whose main task, and at the same time a serious challenge, is to incorporate scientific input into political considerations. SIA has also been defined as a planning tool to understand the cost and benefit distribution of project development and assist in social planning (Bowles & Cook, 1981; Howitt, 1989; Craig, 1990; Lane, Ross & Dale, 1997). Lane et al. (1997) see the central task of SIA to be the management of social impacts resulting from (resource) development and policy change, its integral component is the identification of strategies to mitigate adverse consequences.

Given the definitions and interpretations outlined above, it could be speculated that being predictive in its nature, it is a localized study of the process of understanding, managing and controlling change, which determines the main task of Social Impact Assessment. In its document, “International Guidelines and Principle for SIA”, the International Association for Impact Assessment (IAIA) provides the following comprehensive definition –

“SIA is analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primarily purpose is to bring about a more sustainable and equitable biophysical and human environment” (Vanclay, 2003,p. 6).

The definition itself suggests that SIA cannot be treated only as a project approval document as it is in most cases defined in the statutory regulations. In order to serve its primarily tasks, it should be considered at any stage of a project.

Tasks and purpose of the SIA

Burdge and Vanclay (Burdge & Vanclay, 1996) identify three different tasks of the SIA process – (1) assessment and prediction, (2) mitigation and monitoring and (3) auditing, and analysis. As the social impacts vary at the different stages of any project, SIA can be used in its different capacities throughout the project lifespan. When applied as a predictive tool, normally carried out as part of conventional environmental studies, its first task is to determine the potential impacts of a specific action affecting the community before the

commencement of any change. The mitigation focus is oriented towards identifying strategies for averting and minimizing the potential impacts. This stage requires the on-going involvement of all stakeholders including the community. The monitoring extends beyond the mitigation measures and practices and involves observation for any unexpected consequences. However, O’Faircheallaigh (2009) makes two very valid points in regard to the effectiveness and capacity of SIA: first, in some cases the initial SIA does not have the capacity to predict all the impacts and second, many projects and environments alter in the time course after the approval is granted (see also Vanclay, 2002; Vanclay, 2006). These weaknesses lead to the necessity for SIA to explicitly require monitoring and evaluation of impacts over time as this reveals the disparities between predicted and actual impacts and helps to adjust mitigation practices.

Even though most of the scholars plead for SIA to be understood as a process rather than as a “one-off” event serving as a planning tool, there is yet another debate arguing about its main tasks and purpose. This is provoked by the rivalry between the two main conceptual approaches towards SIA studies –traditional or technical and participatory or political one. The debate within the academic literature also resonates into the practical field: is the SIA process principally about prediction, measurement and monitoring of impacts, or a process and a tool to facilitate negotiation among stakeholders (Lockie, 2001).

Conceptual approaches and critiques of SIA

There are two main conceptual approaches to SIA identified in both academic literature and the practical field – technical or traditional and participatory or political. Even though they are designed to serve the purposes of one and the same tool, they differ significantly in their nature. The traditional approach is associated with the conservative understanding that decisions have to be based on objective facts, impacts matter only if they are measurable indicators with priority given to the economic consequences. It relies mainly on the experts’ knowledge and views and somehow fails to reflect community’ perspectives on the decision-making process. On the other hand, the political approach brings forward all the aspects for which the traditional one is criticised. Table 1 summarises the key characteristics of both traditional and political approaches.

Table 1. Approaches to SIA

Traditional/Technical approach	Participatory/Political approach
SIA is seen as a product	SIA is seen as an on-going process
Model based approach, using predominantly quantitative methods	Exploratory approach, using both qualitative and quantitative methods
Emphasises technical, measurable indicators	Values community perceptions and experience of impacts
Emphasizes the “objective” decision of the experts; science and scientific methods are essential; experts have a predominant role in decision-making	Emphasizes community involvement; innate wisdom and participation; pluralism is essential
Citizens are seen as ‘consumers’	Citizens are seen as key actors in the decision-making process
Improved public decisions via improved impact studies	Improved public decisions through improved socio-political processes
Relies mainly on socio-economic, measurable indicators	Incorporates views, understandings and perceptions of various stakeholders
Better information inputs lead to better decisions	Open participative process leads to better decisions
Based on rationality and processed knowledge and science/scientific methods.	Based on the innate wisdom of the people, participation and pluralism

Based on Lang&Armour, 1981(Lang & Armour, 1981) and Craig, 1990

In recent years, the traditional approach for identifying and projecting likely social impacts has been criticized for being mainly quantitative and focused on demographic, employment, services and facilities provision (Howitt, 1989; Lockie, 2001; Vanclay, 2002; Vanclay, 2006; Colantonio, 2007; Franks, Filder, Brereton, Vanclay & Clark, 2009; Colantonio, 2011). It reflects a functionalist assumption that communities are monolithic and completely ignores the subjective social phenomena (Lockie, 2001). Colantonio (2011) concludes that the conventional SIA has been speculative in its nature and also not in a position to provide

precise, accurate and repeatable results. Lockie (2001) notes that restricting SIA to only technical and quantifiable questions misses the point and biases some values over others. In general, traditional SIA has been overall mono-dimensional, descriptive and quantitatively oriented, carried out mainly as a product rather than as a process. Because of its project-based conceptualization, it tends to turn into a single event, rather than being an on-going process (Burdge & Vanclay, 1996). Designed to serve regulatory guidelines and approval processes, it cannot address cumulative impacts resulting from multiple projects. Lane et al. (1997) manifest that SIA largely failed to deliver its promises of predicting, monitoring and controlling change (similar views are also expressed by Soderstorm, 1981; Rickson et al., 1990; Dale & Lane, 1994).

Further, SIA methods have been blamed for limited community engagement, inadequate involvement of a wide range of stakeholders (Glasson, 2009) and hence representing the values of those preparing the assessment rather than those being affected. Academics propose that to be able to face the challenges of today SIA should first treat/understand society as a dynamic entity that is constantly changing due to various factors that go beyond the physical boundaries of the studied area, and second be multi-dimensional, strategically oriented, based on hybrid (both qualitative and quantitative) methods (Taylor et al., 2003; Colantonio, 2007; Lockie et al., 2008; Esteves & Vanclay, 2009).

Public participation is another aspect of the SIA process that has been widely discussed in academic literature. Authors consider SIA and the public participation process as different but inseparable (Dale & Lane, 1994; Burdge, 1998; Lockie, 2001; Vanclay, 2002), as a political means to decision-making as well as a socio-political process that facilitates negotiations among different stakeholders (Lane et al., 1997). The participative approach in SIA based on involving all potentially affected groups and stakeholders, has been broadly discussed. Lockie (2001) talks about “deliberative processes” that he believes have the potential to enhance the validity of the SIA. He points out that this proposed understanding does not have the ambition to provide “right” or “wrong” answers or to create “one correct answer” but to arrive at a decision that the participants believe is fair and reasonable. Gale (1983) argues that the participatory perspective of the SIA gives the impacted populations a chance to gain insight into their current social situation, to understand historic patterns and grasp ideas about likely alternative futures. Participatory SIA has been also seen as a tool that can empower local

communities to exercise control over their own social environment and future development (see Howitt, 1989; Gagnon, Hirsch & Howitt, 1993).

Regardless the various definitions of SIA, in practice it remains as a subset, ‘the poorer cousin’ (Lockie, 2001; O’Faircheallaigh, 2009) of Environmental Impact Assessment and its main purpose remains to secure project approvals. The “cold war” between the two approaches – technical and participatory, outlined above has been going on for quite some time. In fact, it represents the clash between theory and practice, social sciences and demography, and economy based understandings of society, between the drive to understand societal changes and to report numbers. For quite some time scholars keep advocating for an integrated approach towards social impacts based on a more holistic understanding of impacted entities, seeing the social environment as a dynamic setting that experiences perpetual change and focusing on contribution towards development.

According to Vanclay (2002) SIA is not a technique or a step but rather a philosophy about development that has to consider pathologies, goals and processes of development. Moreover, the “International principles for SIA” released by the IAIA prioritise the “participatory/political” approach and put sustainability goals in the spotlight. These clarifications are set to make it clear that social impact assessment is not a single event part of the approval process. It is considered to be a complex, extensive and comprehensive exercise of understanding and contributing to the local environment, aiming to meet the core objectives of the triple-bottom line (TBL) sustainability agenda. The document stresses the key aspects of the SIA process, which take it further away from its “prediction” oriented nature and enlightens its “contribution” and capacity building features. It also emphasizes that SIA not only “measures” but “promotes” community development and empowerment, builds capacity and develops social capital (social networks and trust), builds on local knowledge and utilises participatory processes to analyse the concerns of those affected.

Furthermore, O’Faircheallaigh (2009) notes that the growing emphasis on corporate social responsibility (CSR) whereby policies prioritize stakeholder engagement, ‘convinces’ companies that they cannot continue to operate profitably unless they meet the needs of specific stakeholders. With the progress of the corporate social responsibility vision the purpose of SIA has slowly began to shift. It no longer has to identify only the impacts of proposed developments, it has to ensure and provide evidence that the development of the project is socially sustainable in the long run (O’Faircheallaigh, 2009). This new feature of

SIA adds another task to its practical application, which is no longer limited to prediction of potential impacts but also to provide possible options to address them. First, the monitoring aspect is slowly taking priority and second, the focus on mitigation is now accompanied by the contribution approach.

As part of applied social sciences, the field of SIA has improved dramatically in recent years. It, in fact, incorporates any type of research that looks at social factors (Finsterbusch, 1985). It is in its nature an exploratory exercise that tries to identify potential, foreseeable or emerging problems. The bottom line of carrying out the assessment studies is to find out who benefits and who loses as a result of the development and what the trade-offs are for the social actors (Burdge, 1995).

2.3. Social impacts

Definition

A lot of attempts on conceptualizing and defining social impacts have been made (Burdge & Vanclay, 1996; Dale et al. 2001; Becker & Vanclay, 2003; Slootweg R 2003). In the academic literature, different authors consider different a range of as impacts, depending on the proposed activity and its local environment. The types, nature and order of impacts will be discussed further in this section. The universally adopted ICPGSIA definition considers social impacts to be:

“the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society.” (ICPGSIA, 1994, p. 1).

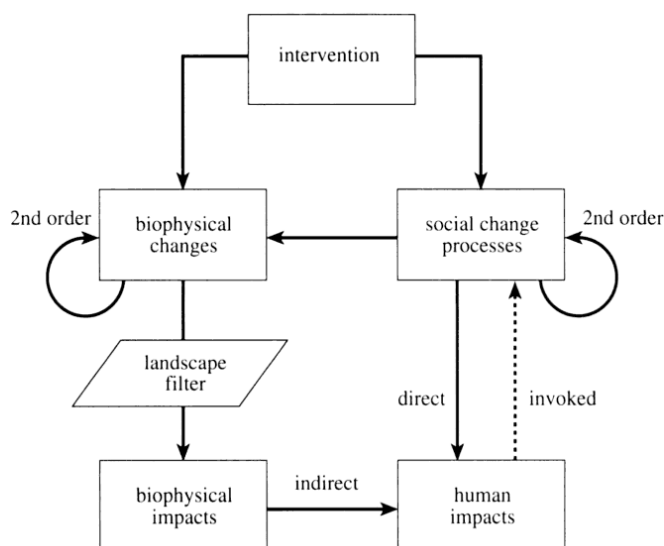
Social impacts are not easy to define and measure. The above broad definition makes it difficult to define all possible impacts that may occur in any situation and environment. They are very context specific, vary from community to community and often depend on factors and processes which are external to the studied environment. Social impacts are occurring as a result of social change processes taking place in a particular environment. It has been argued that often social impacts are confused with social change process – for example, an increase in population or the influx of newcomers (Vanclay, 2002). In order to articulate social impacts

– their types and manifestation, I first distinguish between social change process and social impacts.

Social impacts and social change processes

In the academic literature, social change processes resulting from a project are broadly defined as processes that alter in one way or another, the existing social fabric. They are classified as “first-order” and “second or higher order” changes (Becker&Vanclay, 2003). Social change processes which result directly from the project are called “first-order changes”. The latter can lead to other “second” or “higher” order changes that may on their own contribute to the evoking of other change processes. At the same time, the impacts, already generated by the social change processes, may invoke other changes. The way social change processes and impacts are caused and generated is very complex and interconnected, as they all come to existence as a function of the social setting, and are in an inseparable relationship with the economic and biophysical aspect of the environmental. While conceptualising social change processes and social impacts, Schooten et al.(Schooten, Vanclay & Slootweg, 2003) propose a model that identifies pathways for environmental and social impacts to result from a project (see Figure 1). The model exemplifies the complexities of how changes and impacts are generated.

Figure 1. Integrated framework for environmental and social impact assessment



Source: Slootweg, Vanclay and Schooten ,2001

Social change processes which appear as a result of development projects vary during the project’s lifespan. Furthermore, the actual processes get “mixed” with other social change

processes taking place not only in the local environment but in the background, i.e. the society as a whole. In other words, the actual social change processes taking place in a particular community, are constituted by the influence of other factors, different than the proposed project such as alterations in the natural environment, technological change, economic change, political change etc. As social change processes themselves generate other changes, it is really hard to list them as they are not just one-off events that can be easily isolated. As Vanclay (2002) argues, part of the problem is the lack of clarity about what exactly constitutes a social change process and the level of details that should be specified when identifying it in the process of social impact assessment.

Even though social change processes cannot be explicitly defined and framed in a list, they can be grouped in the following categories proposed by Schooten, Vanclay and Slootweg (Schooten, Vanclay & Slootweg, 2003):

- ❖ Demographic – changes in the number and composition of people
- ❖ economic – related to the way in which people make a living and perform economic activity in the society
- ❖ geographic – changes in land use patterns
- ❖ institutional and legal – related to the efficacy and effectiveness of institutional structures, including government and non-government organisations
- ❖ emancipatory and empowering – increasing the influence in decision-making
- ❖ socio-cultural – affecting the culture of the society
- ❖ other processes.

(See Schooten, Vanclay & Slootweg, 2003)

While conceptualizing social change processes and social impacts, they argue that certain social changes under certain conditions may lead to social impacts in one community and might not cause any impact in another. Responses to social changes vary not only from one community to another, but also affect in a specific way different groups within a particular community. Some social change processes may lead to both positive and negative impacts, depending on the conditions under which the social change is introduced and the specifics of those being affected. Humans respond in different ways to social changes, due to a variety of factors, and the conditions defining the social system (Burdge & Vanclay, 1996; Taylor et al., 2004). The way social changes are perceived is very much dependent on the local social

context, the structure of the social environment and historic patterns within the community. In addition, some groups and individuals within the society cope and adapt easier to changes than others, therefore social change processes and respectively impacts are very context specific.

For example, as Taylor et al. (2003) found out in their longitudinal study “Resource community formation and change”, carried out for the Foundation for Research, Science and Technology in New Zealand, factors such as change in technology and organisation of work, the willingness of people to commute to work from larger distances, restructuring and centralization in social services and other sectors, influence fundamental social changes within a particular community. They also argue that single-sector explanations of boom-bust cycles, which use levels of population and employment as primary social indicators are no longer relevant. External linkages such as shifting the emphasis between the roles of the state and the private sector, investment patterns, environmental policy and resource management, social policy and community development strategies, should also be considered when predicting/estimating the likely societal changes of a project.

On the other hand, the influx of people and the associated services and facilities provision can be easily mitigated by appropriate interventions. Life-style strategies and social status, which may be of greater importance for the long-term development of the area should also be considered. For example: the new arrivals labour nomads kind of people, chasing jobs or are their life-style strategies are more oriented to better quality of life; what is their social status; what are their values; are they able to develop a sense of attachment to a place and settle for a longer period of time or is their remaining in the area dependent only on entrepreneurial opportunities and economic diversification? As mining is usually carried out in small communities, where entrepreneurship and economic diversification opportunities are usually limited, the establishment of a mine and the association with a single industry, could develop a specific dominant culture, which could be inherently conservative and inflexible (Taylor et al., 2003). People in the area may experience hindrances to develop personal strategies for coping once mining ceases (in a planned way or unexpectedly).

Thus, the most important aspect in assessing potential or current impacts is how people perceive changes and impacts, which may or may not coincide with the understanding of the various technical experts. As Burdige and Vanclay (Burdige & Vanclay, 1996) argue, impacts cannot be simply classified as positive or negative per se, but they are subject to the value judgements of individuals.

The discussion so far reveals the complexities of how social change processes are generated, which respectively postulates the compound nature of social impacts. Human environments cannot fail to adapt to changes, they always do, however as Gramling and Freudenburg (1992) point out, the question is not about the possibility of adaptation, but the consequences of adaptation – i.e. the social impacts.

Social impacts

Social impacts can be felt at various different levels – individual, household, family, organisational, institutional, community, or society as a whole. They can be positive or negative. Negative impacts are those that limit or retard development. The majority of the existing literature focuses predominantly on the negative aspects of resource developments. According to Uglow (1998), positive impacts are those that further social and sustainable development. Some impacts can be perceived or felt in different way, they can be positive and negative at the same time, depending which segment of the studied entity they are referred to. There are several types of social impacts defined in the academic literature, which are outlined below:

a) Direct and indirect (secondary) impacts

Direct social impacts are the immediate consequences of a project. They occur at the same time and place and can be positive and/or negative. Direct social impacts can also be intentionally evoked, resulting from purposefully designed programmes, plans and activities to influence the social setting, such impacts are known as “induced” impacts.

Indirect or secondary impacts are either the result of the direct impacts or are generated by second or higher social change process, usually occurring through a complex pathway. They often occur later than the direct impacts and their manifestation generally is delayed in time. According to Schooten, Vanclay and Slootweg (Schooten, Vanclay & Slootweg, 2003) secondary impacts are aftermaths of changes in the biophysical environment that affect the functions it provides to people (see also Figure 1).

b) Cumulative impacts

Cumulative impacts are a complex phenomenon: they are incremental, pervasive in nature, can extend over large geographic areas and can exhibit significant time lag (Kennett, 1999). They may be influenced by past, present and reasonably foreseeable actions/events, together

with the project. Causality is not a defining characteristic as they can result from multiple unrelated factors, often exogenous to the studied environment. Cumulative impacts are unique firstly, because they cannot be properly understood or managed simply by focusing on an individual project and secondly, because they are often results from the activities of multiple actors (Franks, Brereton & Morgan, 2011). According to Franks et al. (2011) they are by definition determined by the reference point of the receiver, i.e. they are the totality of impacts experienced by an entity.

Three main types of cumulative social impacts are defined in the literature:

- ❖ Special – impacts that occur over an area
- ❖ temporal – impacts that vary over time, they can be simple – have a specific time of commencement and are measured form over time and offset – occur when multiple simple temporal impacts are superimposed upon one another over time and
- ❖ linked – involve complex interaction between impacts. Linked impacts can be triggered – when an impact occurs as a result of another impact, without which it would have not come to existence and associated – when multiple direct and indirect impacts occur as a result of a single event or action.

(See Franks et al. 2011)

Cumulative impacts can result from a single action, from a pathway or through a chain of direct or indirect impacts. Even though the prime cause of triggering the social impacts may be the proposed project, they are co-generated through the process of mitigation and adaptation policies. According to Rickson et al. (1990) social impacts are not just there waiting to be discovered, they have been constructed in the process of assessment, negotiation and “mitigation” of impacts, public participation etc., which take place around a development and/or policy interventions.

c) Actual and perceived

All impacts irrespective of whether these are understood as social or environmental have both material and symbolic dimensions (Lockie et al., 1999; Vanclay, 2002; Slootweg R 2003). Social impacts can be corporal – felt by the body as a physical reality or perceptual (emotional). Actual impacts are in most cases impacts considered to be measurable and visible such, as noise, traffic, dust, deteriorated health etc.

However, in assessing potential or current impacts it is crucial to be aware of what the people's perception about the changes and impacts is. This may or may not coincide with the understanding of the various technical experts. The distinction between actual and perceived impacts brings forward the discussion about "objective" and "subjective" assessment of impacts. The conviction that the only impacts that matter are the actual objective impacts that in most cases can be properly measured is still dominating in social assessment practices. The way residents of a particular locality perceive a development has proven to be significant for the future proceeding with and success of a project. Increasingly, they constitute an important source of information and tend to over-weigh the "objective" impacts. Perceived impacts are not that obvious and easy to identify and deal with as are actual impacts. While it is much easier to register the level of noise and dust, or the lack of appropriate housing for example, it is much harder to identify the perceived quality of the living environment, social cohesion, the presence of newcomers etc. Perceived impacts are also quite dispersed among the various groups within the social setting, which additionally makes it harder to be dealt with them. While actual impacts can be relatively easily determined and identified, perceived impacts are quite ambiguous by definition. As Burdge and Vanclay (Burdge & Vanclay, 1996) argue impacts cannot be simply classified as positive or negative, they are subject to the value judgements of individuals. However, people who are concerned have the best position to say how they feel about events (Ross, 1990). Knowledge of the aspirations of those being affected as well as accounting for their values, social dynamics and beliefs are crucial for identifying the significance of the predicted or already identified impacts. Moreover, such knowledge can provide quite helpful information for the development of mitigation strategies (Lockie, 2001; Lane, Ross, Dale & Rickson, 2003; O'Faircheallaigh, 2009).

Social impacts indicators

With social impacts being broad in definition, and covering a vast scope of aspects of human and social life, scholars and social impact specialists stress that it is impossible to create a detailed and universal list of variables encompassing all dimensions of social impacts due to several reasons:

- Social change has a way of creating other changes;
- social impacts result from a combination of project specific changes and external for the local environment changes;

- social impacts are situation-specific and vary according to the social, cultural, political, economic and historic context of the community;
- social impacts are project specific and projects change over time;
- social impacts depend very much on the mitigation practices put into place.

(See Vanclay, 2002)

Nevertheless, a lot of research has been done on typologising changes and impacts that are likely to appear as consequences of a proposed action (Branch, Thompson, Hooper, & Creighton, 1984; Armour, 1990; Gramling & Freudenburg, 1992; Juslén, 1995; Burdge & Vanclay, 1996; Taylor, Lane et al. 2001; Vanclay, 2002; Sloodweg R 2003). Major categories of impacts identified in the literature include lifestyles, attitudes, beliefs and values, social organisation (Taylor, Lane et al., 2001) as well as community resource, social organisation and individual and community well-being (Branch et al., 1984). Gramling and Freudenburg (1992) categorise six systems of the human environment that are likely to be affected by proposed actions – (1) biophysical, (2) cultural, (3) social, (4) political, (5) economic and (6) psychological. Juslén (1995) outlines six general categories of impacts that include (1) standard social impacts, such as noise and pollution; (2) psychological impacts, such as community cohesion, disruption of social networks; (3) anticipatory, (4) impacts from carrying out the assessment; (5) impacts on state and private services and (6) impacts of mobility. Burdge (1995) outlines five main categories of impacts – (1) population characteristics; (2) community and institutional structures, (3) conflicts between local residents and newcomers, (4) individual and family changes and (5) community resources, that include 26 indicators in total.

Vanclay (2002) expands Armour's (Armour, 1990) list² of variables and identifies eight areas of importance where social impacts may occur. It is considered social impacts are extant if there is evidence for a change in one or more of the following:

- ❖ **people's way of life** – that is, how they live, work, play and interact with one another on a day-to-day basis;
- ❖ **their culture** – that is, their shared beliefs, customs, values and language or dialect;

² Armour's list of types of social impacts consists of three categories – (1) people's way of life – how they work, play and interact with one another on a day-to-day basis; (2) their culture – shared beliefs and values; (3) their community – its cohesion, stability, character, services and facilities.

- ❖ **their community** – its cohesion, stability, character, services and facilities;
- ❖ **their political systems** – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose;
- ❖ **their environment** – the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
- ❖ **their health and well-being** – a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity;
- ❖ **their personal and property rights** – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties;
- ❖ **their fears and aspirations** – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children

(See Vanclay, 2002)

The variables included in the existing social impacts lists vary as does the way they are grouped and organised. As social impacts are very context specific, they cannot be listed and predicted in advance. Scholars emphasise that more attention is paid on quantitative and negative impacts, which is one of the main critiques of the SIA process discussed in Section 2.2. While analysing existing lists of social impacts, Vanclay (2002) points out that many of the lists do not differentiate between social impacts and social change processes and ignorantly consider social change processes for impacts. Despite being a strict critic of pre-developed lists of impacts he proposes seven categories and 78 indicators to be taken into consideration. The variables provided are only indicative and may or may not be evoked in a particular local environment. The proposed list builds on other existing lists and is probably the most extensive one, demonstrating the wide scope of dimensions and possibilities, likely to occur as social impacts. Even though it does not claim on being exhaustive, it exemplifies the multiple levels at which impacts manifest, i.e. individual, family, group, institutional, community, regional level or society as a whole. The list is presented in Table 2.

Table 2. Indicative list of social impacts

Indicative List of Social Impacts	
<p>A. <u>Indicative Health and Social Well-being Impacts</u></p> <ul style="list-style-type: none"> ❖ Death of self or a family member – personal loss ❖ Death of community member – loss of human and social capital ❖ Nutrition – adequacy, security and quality of individual and household food supply ❖ Actual health and fertility (ability to conceive) of family members ❖ Perceived health and fertility ❖ Mental health and subjective well-being – feeling of stress, anxiety, apathy, depression, nostalgia, melancholy, changed self-image, general self-esteem (psycho-social factors) ❖ Changed aspirations for the future for self and children ❖ Autonomy – changes in an individual’s independence or self-reliance ❖ Experience of stigmatization or deviance labelling – the feeling of being ‘different’ or of being excluded or socially marginalized ❖ Uncertainty – being unsure about the effects or meanings of a planned intervention ❖ Feelings (positive or negative) in relation to the planned intervention – which may result in formation of interest groups ❖ Annoyance – a feeling/experience such as due to disruption to life, but which is not necessarily directed at the intervention itself ❖ Dissatisfaction (betrayal) due to failure of a planned intervention to deliver promised benefits ❖ Experience of moral outrage – such as when a planned intervention leads to violation of deeply held moral or religious beliefs 	
<p>B. <u>Indicative Quality of Living Environment (Liveability) Impacts</u></p> <ul style="list-style-type: none"> ❖ Perceived quality of the living environment (i.e. work and home environment or neighbourhood) – in terms of exposure to dust, noise, risk, odour, vibration, blasting, artificial light, safety, crowding, presence of strangers, commuting time etc ❖ Actual quality of the living environment ❖ Disruption to daily living practices (which may or may not cause annoyance) ❖ Leisure and recreational opportunities and facilities ❖ Aesthetic quality – visual impacts, outlook, vistas, shadowing etc. ❖ Environmental amenity value – the non-market, non-consumptive aesthetic and moral value ascribed to a location or experience ❖ Perceptions of the physical quality of housing ❖ Actual physical quality of housing ❖ Perception of the social quality of housing (homelessness) – the degree to which inhabitants feel that their house is their ‘home’ ❖ Availability of housing facilities ❖ Adequacy of social infrastructure – change in the demands and supply of basic social services and facilities, such as education, police, libraries, welfare services, etc. ❖ Perception of personal safety and fear of crime ❖ Actual personal safety and hazard exposure ❖ Actual crime and violence 	
<p>C. <u>Indicative Economic Impacts and Material Well-being Impacts</u></p> <ul style="list-style-type: none"> ❖ Workload – amount of work necessary in order to survive and/or live reasonably ❖ Standards of living, level of affluence – a composite measure of material well-being referring to how well off a household or individual is in terms of their ability to obtain goods and services. It is also related to the cost of living and is affected by changes in local prices etc. ❖ Access to public goods and services ❖ Access to government and/or other social services ❖ Economic prosperity and resilience – the level of economic affluence of a community 	

and the extent of diversity of economic opportunities

- ❖ Income – both cash and in-kind income
- ❖ Property values
- ❖ Occupational status /prestige and type of employment
- ❖ Level of unemployment in the community – underutilisation of human capital
- ❖ Loss of employment options
- ❖ Replacement costs of environmental functions – the cost of replacing a product or service that was formerly provided by the environment, such as clean water, firewood, flood protection etc.
- ❖ Economic dependency or vulnerability – the extent to which an individual or household (or higher entity) has control over economic activities, the degree of incorporation into larger production systems
- ❖ Disruption of local economy – the disappearance of local economic system and structures
- ❖ Burden of national debt – such as the international transfer of debt

D. Indicative Cultural Impacts

- ❖ Change in cultural values – such as moral rules, beliefs, ritual system, language, and dress
- ❖ Cultural affrontage – violation of sacred sites, breaking taboos and other cultural mores.
- ❖ Cultural integrity – the degree to which local culture such as traditions, rites etc. are respected and likely to persist
- ❖ Experience of being culturally marginalised – the structural exclusion of certain groups because of their cultural characteristics, thus creating a feeling of being a second class citizen
- ❖ Profanisation of culture – the commercial exploitation or commodification of cultural heritage (such as traditional handicrafts, artefacts) and the associated loss of meaning
- ❖ Loss of local language or dialect
- ❖ Loss of natural and cultural heritage – damage to or destruction of cultural, historical, archaeological or natural resources, including burial grounds, historic sites, and places of religious, cultural and aesthetic value.

E. Indicative Family and Community Impacts

- ❖ Alternations in family structure – such as family stability, divorce, number of children at home, presence of extended families
- ❖ Changes to sexual relations
- ❖ Obligations to living elders
- ❖ Obligations to ancestors
- ❖ Family violence – physical or verbal abuse
- ❖ Disruption of social networks – impacts on the social interaction of household members with other people in the community
- ❖ Changes in the demographic structure of the community
- ❖ Community identification and connection – sense of belonging, attachment to place
- ❖ Perceived and actual community cohesion
- ❖ Social differentiation and inequality – creation of perceived and actual differences between various groups in a community or differentiation in level of access to certain resources
- ❖ Social tension and violence

F. Indicative Institutional, Legal, Political and Equity Impacts

- ❖ Workload and availability of government or formal agencies – capacity of the formal institutions to handle additional workload generated by a planned intervention
- ❖ Workload and viability of non-government agencies and informal agencies including community organisations
- ❖ Integrity of government and government agencies – absence of corruption, competence in performing tasks
- ❖ Loss of tenure or legal rights
- ❖ Loss of subsidiarity – a violation of the principle that decisions should be taken as close to the people as possible
- ❖ Violation of human rights – any abuse of human rights, arrest, imprisonment, torture, intimidation, harassment etc., actual fear or censorship and loss of free speech
- ❖ Participation in decision-making
- ❖ Access to legal procedures and legal advice
- ❖ Impact equity – notions about fairness in the distribution of impacts across the community

G. Indicative Gender Relations Impacts

- ❖ Women's physical integrity – refers to the right of women to be able to make informed decisions about their own body, health and sexual activity, having control over fertility and childbearing and child-rearing practices, and having the resources to implement those decisions safely and effectively, and to be free from coercion, violence and discrimination in the exercise of those decisions
- ❖ Personal autonomy of women – the level of independence, self-reliance and self-respect in physical, economic, political and socio-cultural aspects
- ❖ Gender division of production oriented labour – refers to gendered and uneven distribution of workload in relation to the care and maintenance of household members, that is the personal burden of childbearing and childrearing
- ❖ Gender-based control over, and access to, resources and services – including land, water, capital, equipment, knowledge, skills, employment opportunities and income, and services such as health facilities, education and agricultural extension services
- ❖ Equity of education achievement between boys and girls
- ❖ Political emancipation of women – women's influence on decision-making at household, community and society level

Source: Vanclay, 2002

The list shows that impacts refer to quantifiable variables such as the number of migrants and levels of employment and unemployment, but can also refer to qualitative indicators such as cultural impacts including perceptions, beliefs, norms and values. While social impact practitioners tend to prefer using templates for social impacts when studying a particular environment, researchers argue that such lists are not applicable as they might be biased and might not reflect the local specifics.

Construction of social impacts

The discussion so far revealed that social impacts can be assessed and properly understood only if they are related to a particular environment; even more, they make real sense by the meanings attributed to the changes by those being affected (Lockie et al., 1999). The latter is

shaped by a community's prior experience and current interests (Gramling & Freudenburg, 1992; Esteves & Vanclay, 2009). In order to understand how impacts are constructed, it is important to have knowledge about community strengths, vitality and quality of life, experiences of impacts and expectations for corporate-community contributions, rather than just focus on socio-economic assessment with traditional populations and economic measures (Esteves & Vanclay, 2009). Moreover, it is essential to have grounded knowledge about community's organisation, how it views and adapts to change as well as to take into consideration any other external linkages and processes (Taylor et al., 2003; Franks et al., 2011).

Social impacts are constructed throughout the lifespan of a project – from the time it is proposed and further on, during the different phases it goes through. Whereas environmental/physical impacts do not occur until there are any concrete alterations of the environment, social impacts can be noticed as soon as new information is available (Gramling & Freudenburg, 1992). These could be speculations about property prices, formation of various groups of interests, investment and economic activities, defined by Gramling and Freudenburg (1992) as “pre-development” or “anticipatory” impacts. Impacts evolve, change and transform further throughout the project and continue long after the development or the activity has ended.

Impacts are also generated through the managing processes of mitigation, adaptation and contribution. This includes processes, such as programs and measures to minimize and/or compensate those being affected, as well as processes of enhancing positive benefits or contributing (adding value) to local communities and the social environment as a whole.

The dynamics in the regulatory relationships between government agencies, public groups and industrial firms also play a significant role in the formation of social impacts. Therefore a proper grasp of the social structure is crucial in order to understand the meaning of the social impacts (Rickson et al., 1990; Slootweg R 2003; Esteves, 2008a&b).

2.4. Conclusion

The chapter presented a historical overview of the development of the social impact assessment field within which the social impacts of mining are studied. Having emerged to serve regulatory frameworks and being used mainly as a tool, it evolved and has been

established as a separate discipline within sociology and social sciences, relaying predominantly on theories and research related to community studies and organisational analysis. Being exploratory in its nature and recognised as a process rather than as a tool, as well as involving the engagement of all stakeholders and acknowledging public participation, it has been envisaged as a “philosophy of development” aiming to meet the core tenants of the sustainability agenda.

Defining social impacts and exploring their various types, manifestations and construction is an important area of research endeavour. By distinguishing between social change processes and social impacts, attention has been drawn towards the complexities of the social impacts phenomena. The review brings forward the interconnectedness, contextuality, subjectivity and time related dimensions of the social impacts and outlines the various processes that may influence their generation. In the next chapters I explore the mining industry’s shift to sustainability and the consequences following that, need to be discussed.

CHAPTER THREE – THEORETICAL FRAMEWORK FOR STUDYING SOCIAL IMPACTS

3.1. Introduction

The concepts overviewed in Chapter 2 have contributed to a detailed understanding of the nature and origin of social impacts. It was emphasised that the way they manifest is largely due to a combination of endogenous and exogenous factors together with the state of the local environment, which pre-determines their ambiguity and complexity. However, in studying social impacts, the dominant tradition of contemporary sociology requires that we investigate our concepts and understandings about the world rather than the world itself. As Redclift (1999) suggests the task of impact studies is not to judge what is good or bad, but to explore understandings about the impacts and then propose approaches to deal with them. Notwithstanding this, in order to be able to understand and provide explanation about existing social impact phenomena, they have to be positioned within relevant paradigms influencing human development.

Currently social progress is marked with and challenged by the notion of sustainability. Sustainable development “has become an internationally accepted keyword for a political discourse committed to quality of life, the sensible use of natural resources and a sense of obligation to future generations” (Becker&Jahn, 1999). It can be called a vision for the future as its ontological fundamentals are oriented towards the future. Still, what makes it different from utopianism and any ideologies is the fact that the actions affecting this future have to be feasible and taken “here and now”. Hence, sustainable development is a process of transformation. It emphasises the diverse pathways of development a society could follow, depending on its particular cultural, political and ecological starting points (Becker et al., 1997). The sustainability agenda, moreover the social aspect of it, brought forth an important debate that differentiates growth and development, asserting that growth is a quantitative increase, whereas development is a qualitative change (Daly, 1996). As sustainability seriously challenges the dominant development paradigm of modernisation (geared towards progress) and shapes the political, economic and social environment, it makes increasingly questionable the immediate relation between development and economic growth as well as the direction of development (Becker et al., 1997; Korten,1991-1992).

The debate about whether resource industries are sustainable or not is similar to the one about the chicken and the egg. Influenced by the challenges of the new development paradigm, the mining industry in particular is no longer interested in the trial argument as to whether it is sustainable and started to engage with the question how it can contribute to sustainability. Many companies have endorsed this shift and began looking for strategies and undertaking actions so that they can adequately respond to the goals the sustainable development vision sets. From a focus on mitigation and compensation for their activities in a particular area, mining companies have now expanded the horizon and are committing to be socially responsible.

This chapter develops a theoretical framework for a methodological approach towards understanding the social impacts of mining through the social sustainability perspective. Three key concepts considered to have a recognisable contribution towards shaping the social impacts of mining in the contemporary environment are discussed, namely social sustainability, social capital and corporate social responsibility.

The chapter begins (Section 3.2) with defining social sustainability and exploring the essence of the concept. In Section 3.3, social capital is defined and possible links with the social sustainability agenda are proposed. Section 3.4 reflects on the Corporate Social Responsibility concept as a possible practical tool for contribution toward socially sustainable communities when affected by resource industries. The concepts discussed in this chapter do not refer to the specifics of mining, but rather propose a possible approach to dealing with the impacts (both positive and negative) of mining operations on local communities. A detailed discussion on the specifics of the mining impact on local communities is presented in Chapter 6.

3.2. Social sustainability

Social sustainability is a constitutive dimension of sustainable development. However, it has often been posited in relation to environmental and economic sustainability (McKenzie, 2004) and is significantly under-developed in comparison to the other two pillars. Only recently in the last couple of years, it has received research attention. Therefore, the existing literature on the topic is quite limited and a clear theoretical concept of social sustainability is still to emerge (Spangenberg ; Littig & Griessler, 2005; Colantonio, 2011). In the following sections I outline theoretical interpretations of social sustainability that link to social impact theories.

Towards a definition

Social sustainability is a wide-ranging, multi-dimensional concept, open to a multitude of attempts to define the social goals of sustainable development (Littig & Griessler, 2005; Dempsey, Bramley & Brown, 2011). Being elusive in its nature and grounded not in theory but rather in practical understanding and current political agendas (Littig & Griessler, 2005), it is an open concept, vague in its definition. There are various interpretations of social sustainability, depending on the perspectives researchers and practitioners take. Sachs (1999) argues that social sustainability should be understood as a socio-historical process rather than a state. According to Littig and Griessler (2005), “it signifies the nature-society relationships, mediated by work, as well as relationships within the society”. McKenzie (2004) understands it as a process and a condition at the same time. He outlines nine indicators (see Table 3) for the conditions and considers the steps towards their establishment to be the aspects of the process. Taking the stand of community perspectives and not indulging individual needs, McKenzie emphasises first the “communal/collective” aspect of the social sustainability phenomenon and second, the existing inner mechanisms of communities to identify their strengths and pursue needs. He argues that social sustainability is “the task to maintain and develop societal resources, and to guarantee equal opportunities to access them” (McKenzie, 2004, p. 13).

Table 3. Social sustainability indicators

✓	Equity of access to key services (including health, education, transport, housing and recreation)
✓	Equity between generations, meaning that future generations will not be disadvantaged by the activities of the current generation
✓	A system of cultural relations in which the positive aspects of disparate cultures are valued and protected, and in which cultural integration is supported and promoted when it is desired by individuals and groups
✓	The wide-spread political participation of citizens not only in electoral procedures but also in other areas of political activity, particularly at a local level
✓	A system for a transmitting awareness of social sustainability from one

generation to the next	
✓	A sense of community responsibility for maintaining that system of transmission
✓	Mechanisms for a community to collectively identify its strengths and needs
✓	Mechanisms for a community to fulfil its own needs where possible through community action
✓	Mechanisms for political advocacy to meet needs that cannot be met by community action

Source: McKenzie, 2004

The concept of work appears to be a central anchor in the German sustainability discourse. Analysing it from a strictly sociological perspective, Littig and Griessler (2005) emphasise both “needs” and “work” and argue that work in its broadest sense³ plays a central role for sustainability. Spangenberg (Spangenberg, 2002) also considers work in its broader context to be the key element of social sustainability, insisting that *“Social sustainability and the future quality of life will depend heavily on the strengthening of the self-realisation potential of flexible working by means of collective arrangements in paid as in unpaid work and on individual qualifications in the widest sense.”*(Spangenberg 2002 p. 8)

After exploring existing definitions and explanations about social sustainability, Colantonio (2007) provides a broader definition (see Table 4), incorporating personal and societal perspectives. He argues that social sustainability covers both personal and societal assets, rules and processes that empower to participate and allow people and communities to achieve long-term goals. Further, Biart (2002) emphasizes that social sustainability “aims to determine the minimal social requirements for long-term development (sometimes called critical social capital) and to identify the challenges to the very functioning of society in the long run” (Biar, 2002, p. 6).

Table 4 summarises key definitions of social sustainability. They have many commonalities (such as long-term perspective and community nature) but also vary in their interpretations as to what is at the core of social sustainability.

³ Including paid and unpaid/voluntary labour, care and community work

Table 4. Examples of social sustainability definitions

Definition	Author
<p>Social sustainability is: a life-enhancing condition within communities, and a process within communities that can achieve that condition</p>	<p>(McKenzie, 2004, p. 12)</p>
<p>A strong definition of social sustainability must rest on the basic values of equity and democracy, the latter meant as the effective appropriation of all the human rights – political, civil, economic, social and cultural – by all people.</p>	<p>(Sachs, 1999, p. 27)</p>
<p>Social sustainability is a quality of societies. It signifies the nature-society relationships, mediated by work, as well as relationships within the society. Social sustainability is given, if work within a society and the related institutional agreements satisfy an extended set of human needs and are shaped in a way that nature and its reproductive capabilities are preserved over a long period of time and the normative claims of social justice, human dignity and participation fulfilled.</p>	<p>(Littig & Griessler, 2005, p 72)</p>
<p>Sustainability aims to determine the minimal social requirements for the long-term development (sometimes called critical social capital) and to identify the challenges to the very functioning of society in the long-term.</p>	<p>(Bart 2002, p. 6)</p>
<p>Social sustainability of a city is the development and/or growth that is compatible with the harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population.</p>	<p>(Stren 2000)</p>
<p>Social sustainability occurs when formal and informal processes, systems structures and relationships actively support the</p>	<p>(Barron & Gaunetlett, 2002)</p>

<p>capacity of future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic, and provide good quality of life.</p>	
<p>Personal and societal assets, rules and processes that empower individuals and communities to participate in the long-term and fair achievement of adequate and economically achievable standards of life based on self-expressed needs and aspirations within the physical boundaries of places and the planet as a whole.</p>	<p>(Colantonio, 2007)</p>

The definitions provided above indicate that there are two main complementary, co-existing and co-related aspects of social sustainability, which define its nature, namely that social sustainability is a condition and a process at the same time. This adds another difficulty in describing its essence. However societies and respectively communities have to fulfil the condition of being socially sustainable in order to sustain and reproduce themselves at an acceptable level of functioning (Dempsey et al., 2011)

In summary, social sustainability and sustainable development in their essence relate predominantly to communal-oriented needs and achieving goals, which are placed in a long-term continuum. This is in strong contrast with satisfying the fulfilment of individual-oriented needs strongly emphasized in western societies. They relate to the internal organisation of individual societies as well as the world community as a whole (Sachs 1996 as cited by Becker et al., 1997). Social sustainability is a process and a goal, which results in a social construct related to different forms of social capital (both positive and negative), incorporating social mobility and cohesion, solidarity and tolerance and has long-term oriented goals (McKenzie, 2004; Ahmad, & Ahmed, 2000, Barron, & Gauntlett, 2002; Dempsey et al., 2011). When understood mainly as a process of change, it makes irrelevant the efforts to sustain the existing social structures and customs which leads to a more static view of sustainability (Becker et al., 1997). As a concept, sustainability emphasises the requirement to focus on the dynamic process of societal changes in which the natural environment as well as economic and political processes are involved (Dempsey et al., 2011). It also underlines the diversity of social paths of development depending on their particular cultural and/or political as well as ecological circumstances. Becker et al. (1997, p.19) argue that “sustainability should not refer to the conservation of specific structures or to static qualities of societies or the natural environment, but, rather, should refer to stabilized and

preserved patterns within social-ecological transformations”. In other words, sustainability offers a possibility of a conceptual shift from categories of remaining and preservation to categories of change and transformation (Becker et al., 1997).

Thematic areas of social sustainability

The social sustainability discourse is quite diverse, and it is hard to conceptualise particular thematic areas. Some of the key areas discussed in the literature include societal resources such as education, skills, experience, consumption, income and employment (Spangenberg & Omann, 2006), equity, diversity, interconnectedness and democratic fundamentals of society (Sachs, 1999; Stren 2000; Shinn & Magis, 2009; Barron & Gauntlett, 2002), paid and voluntary work (Omann & Spangenberg, 2002), social capital, interactions within the community, social networks, community participation, community stability (Dempsey et al., 2011). While analysing key themes used for the operationalisation of social sustainability, Colantonio (2011) points out that basic needs and equity are consistently being held as fundamental pillars of social sustainability.

The debate about needs has been central in the sustainability discourse. Needs however, in their nature, incorporate all the aspects of social sustainability identified by Colantonio (2011). The lack of clear definition though reflects the understandings and definitions of the notion of social sustainability and sustainability as a whole and allows various interpretations. In general, as the basic and most used definition of sustainable development implies, needs have often been understood and referred to as basic material needs related to the ecological subsistence of humans, including food, water, shelter, energy, jobs etc., whereas sustainable development is understood in most cases as societal issues, mainly related to political decisions and policy development. As a theoretical and practical concept, needs have their subjective and objective sides, they change over time and are different for different cultures and societies, are defined through “values” (the allocation of a specific importance to a need or strategy) and respectively “capabilities” (objective conditions such as resources in human, social, and material capital) (Rauschmayer, Omann, Frühmann, & Bohunovsky, 2008). Rauschmayer et al. (2008) provide a very comprehensive analysis of needs, distinguishing between needs (the final aim) and strategies (the “*satisfiers*” to meet these needs). Further, they define needs as “the most fundamental dimensions of human flourishing” and respectively strategies “are instrumental means to fulfil needs” (Rauschmayer et al., 2008, p. 5). Redclift (1999) argues that as needs change, it is very unlikely that those of future

generations will be the same as those of the present generation. However, if needs are being linked and co-related to development, it is obvious that development itself contributes to needs and therefore helps to define them according to generations and cultures.

Equity is considered a crucial component of social sustainability as it has its foundations in social justice or the “fairness in the appointment of resources” (Burton, 2000, p. 1970). As Dempsey et al. (2011) argue, this clearly reflects the embeddedness of the principle of social equity within the definition of sustainable development, focused on meeting the needs of present as well as future generations. Colantonio (2011) carries out a chronological review of the thematic areas of social sustainability and observes a shift from ‘hard’ themes towards ‘softer’ concepts. He claims that traditional themes such as equity, poverty reduction and livelihood have been complemented and replaced by more intangible and less measurable concepts such as social capital, social mixing and cohesion, empowerment and participation, well-being etc. (see Table 5).

Table 5. Traditional and emerging social sustainability key themes

Traditional and Emerging Social Sustainability Key Themes	
Traditional	Emerging
Basic needs, including housing and environmental health	Demographic change (aging, migration and mobility)
Education and skills	Social mixing and cohesion
Employment	Identity, sense of place and culture
Equity	Empowerment, participation and access
Human rights and gender	Health and safety
Poverty	Social capital
Social justice	Well-being, happiness and quality of life

Source: Colantonio, 2011

The themes outlined by Colantonio (2011) are the most relevant to the social impacts areas identified earlier in Chapter 2 (see Section 2.2). They cover a broader societal spectrum that corresponds to the areas of change outlined earlier through the existing lists of social impacts. Looking through the prism of SIA and more specifically SIA related to the extractive industries, it might be speculated that his perspective about traditional and emerging trends in fact represents the different approaches towards social sustainability carried out within the developing/developed countries context. For example he overlooks human rights and gender issues which are still quite important for indigenous people and minority groups within developed countries, along with health and safety. However, the transition from “hard” to “soft” themes demonstrated in his approach clearly indicates the importance of the intangible, qualitative interpretations of the societal dynamics occurring within a particular environment.

Methodological approaches to social sustainability

A number of theoretical and methodological approaches are used to study social sustainability, which allows different aspects of the concept to be examined:

- Capital stock – social and cultural
- Equity and human rights, poverty, inequality
- Institutional theory and governance – participation, stakeholder analysis
- Business and corporate studies – triple bottom line, corporate social responsibility etc.
- Behavioural and welfare economics – well-being, health, happiness, satisfaction etc.
- Transition theory – institutional theory and system analysis.

(See Colantonio, 2009)

The exploration of each of these thematic areas requires a separate field of research and moreover it offers a different perspective on social sustainability. From the stand of the SIA theoretical framework and the mining community relation, I am going to take the perspective of social capital (and the related concepts such as social cohesion and trust) and the notion of corporate social responsibility as key methodological references. Below I explore the aspects of social capital and corporate social responsibility and demonstrate the links of these concepts to the fundamentals of social sustainability. Despite being important, the other approaches are less informative for understanding and describing the overall social impact of

mining. Equity and human rights, for example, can significantly inform any analysis where indigenous people are disproportionately affected but may omit impacts as they relate to positive change to generating new employment opportunities. Similarly, institutional theory and governance can improve decision-making and facilitate communication channels but may not properly shed light on understanding the social landscape within which mining operates.

3.3. Social capital

The capital stock approach has often been used to study the aspects of sustainability. It represents the degree of social cohesion which exists in communities and encompasses networks, together with shared norms, values, beliefs and understandings which facilitate cooperation within or among groups. Social capital is closely linked to existing ties in terms of closeness, kindness or support, to norms in terms of obligatory rights and duties as well as to mutual trust. There is a considerable body of literature on social capital, but there are three key interpretations around which research has developed, namely those of Bourdieu, Coleman and Putnam.

Key interpretations of the concept

The notion of social capital has been widely used to cover social networks, relationships, contacts, trust or simply social interactions. Broadly speaking, it encompasses a set of social norms of conduct, knowledge, mutuality, trust and reciprocity that are widespread within a particular community (Colantonio, 2007). Further, the concept of social capital also encompasses the formalized institutional relationships and structures such as government, political regimes, rule of law etc.

The French sociologist Pierre Bourdieu is the first to use this term in 1977 when outlining a theory of practice (Bourdieu, 1977). Some years later in 1986 he further clarifies it and describes three forms of capital - cultural, economic and social capital (Bourdieu, 1986). Bourdieu believes that in order to understand the structure and the functioning of the world, it is necessary capital to be discussed in its various forms and not only in the dominant form recognized by economic theories. His treatment of the concept is instrumental and focuses on the benefits accruing to individuals by virtue of participation in groups and on the deliberate construction of sociability for the purpose of creating this resource (Portes, 1998).

Bourdieu understands “*capital*” as an accumulated labour “which when appropriated on a private, i.e. exclusive, basis by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labour.” (Bourdieu, 1986, p. 241). He considers all three forms of capital to be convertible. Economic capital can be immediately converted into money and may also be institutionalised in the form of property rights. Cultural and social capitals however, can be convertible only under certain conditions. Cultural capital can be converted and can be institutionalised into the form of educational qualifications. Social capital, argues Bourdieu, is made of social obligations, and can be turned into economic capital or institutionalised in the form of symbolic capital, i.e. a title of nobility. Social capital, as defined by Bourdieu, is “the aggregate of the actual and potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectively owned capital, a “credential” which entitles them to credit, in the various senses of the world” (Bourdieu, 1986, p. 248-249). The volume of social capital is however, dependent on the size of the network and connections one can effectively mobilise.

Social networks are not naturally given and must be constructed through investment strategies oriented to the institutionalization of group relations, usable as a reliable source of other benefits. Portes (1998) states that Bourdieu’s definition demonstrates that social capital has two decomposable elements: (1) the social relationships that allow individuals to claim access to resources possessed by their associates and (2) the amount and quality of those resources. On the other hand, the acquisition of social capital requires deliberate investment of both economic and cultural resources.

James Coleman, another eminent American sociologist links social capital with economics but in a different way. He introduces social capital as a conceptual tool for understanding the theoretical orientation to social action that combines components of both sociological and economic perspectives. Coleman (1988) believes that social capital is defined by its functions and is a variety of entities with two elements in common – (1) they consist of some aspect of social structures and (2) they facilitate certain actions of actors, whether persons or corporate actors within the structure (Coleman, 1988).

Human capital, just like physical capital, is created by changes in persons that bring about skills and capabilities what make them able to act in new ways. Social capital however, is

built in the relations among persons that facilitate action. Coleman (1988) argues that even though social capital is less tangible, it exists in the relations among people and does facilitate productivity just as physical and human capital do. According to him social capital can take three forms. The first one incorporates obligations, expectations and trustworthiness of the social environment; the second is based on the information channels and the flow of information within the structure in order to provide a basis for action; the third form of social capital constitutes of the norms and effective sanctions existing within the social environment. The three forms are facilitated by certain types of social structures. The first one enables the “closure of social networks” so that all actors are connected in a way that imposes obligations and sanctions upon the members. Appropriable social organisation is an organisation created for one purpose but used for another, turning into a viable source of social capital. In summary, Coleman sees the concept of social capital paralleling with the concepts of financial, physical and human capital, but embedded in the relations among people.

Francis Fukuyama (2001) describes social capital as instantiated informal norm that promotes co-operation between individuals. He argues that the attributes being associated with social capital such as trust, networks, civil society etc. are epiphenomenal and do not constitute social capital itself. However, all groups embodying social capital have a certain “radius of trust”, that is, the circle of people among whom co-operative norms are operative. Fukuyama argues that the level of trust inherent in a given society, conditions its prosperity and degree of democracy, as well as its ability to compete.

According to Putnam (Putnam, 1995), social capital should be seen as a vital ingredient in economic development around the world. He believes that social capital refers to features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefits (Putnam, 2001) and argues that “whereas physical capital refers to physical objects and human capital refers to the prosperities of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them” (Putnam , 2001, p. 19). It consists of ties, norms and trust transferable from one social setting to another. This is one of Putnam’s biggest contributions as he reveals that social capital in fact is not only linked to a specific social setting. Physical, financial, human and social capital are complimentary, not competing alternatives. According to Putnam (2000), communities with a good stock of social capital are

more likely to benefit from low crime figures, better health, higher educational achievement and better economic growth.

One of the significant contributions that Putnam makes is the distinction between two kinds of social capital: *bonding* and *bridging*. Bonding social capital occurs among homogeneous populations such as small groups like church groups, women's reading clubs, ethnic groups, fashionable societies etc. and only benefits those with internal access, in other words it is "*exclusive*". The factors that promote its development such as tight bonds of trust and solidarity may ultimately prevent its entrepreneurial members from reaching their full potential. Therefore, they have to forge ties with others in the wider society, in other words to create their "bridging social capital". Bridging social capital on the other hand is "*inclusive*", it relates to connections outside one's immediate environment. Citing Xavier de Souza Briggs, Putnam argues that bonding social capital is good for "getting by" but bridging social capital is essential for "getting ahead" (Putnam, 2000). Furthermore, he understands social capital as a "public good", that is, it is not the private property of those who benefit from it.

According to Michael Woolcock (1998), before Putnam, authors do not properly distinguish between the different types of social capital. Woolcock further develops the concept and makes a distinction between three types of social capital, namely bonding, bridging and linking capital. According to him, bonding capital "refers to connections to people similar to you", bridging social capital "refers to connections to people who are not like you in some demographic sense" and the linking social capital pertains to "connections with people in power, whether they are in politically or financially influential positions". In order to sustain and generate social capital, two main processes are essential: "bonding" and "bridging". A strong community is characterized by solid bonding but still has to remain flexible as excessive bonding can also result in excluding others. "Bridging" has a wider and more inclusive radius and intends to link people belonging to different societal groups (e.g. people with diverse social backgrounds, different political attitudes etc.).

Even though all authors discussed above consider the key elements of social capital to be the same, there are yet differences in its conceptualisation. Bourdieu (1986) gives primacy to economic capital, according to him this is the type of capital that provides effective access to cultural and social capital. He believes economically privileged individuals can fund the development of cultural capital and their privileged position can be utilised to create social capital. Putnam and Coleman give equal importance to social capital among the other types of

capital; in their essence they are complimentary but not competing alternatives. Placing the different forms of capital on an equal basis does not automatically leads to the assumption that somehow social capital can compensate for the other two or assist the acquisition of the other forms of capital. Even though Putnam advocates the idea that high levels of social capital can contribute to better economic performance, there are examples that demonstrate how areas rich in social capital habitually underperform economically (Matthews, 1983; Richling, 1985).

The notions of social capital discussed by Bourdieu and Coleman focus mainly on the aspect of social capital related to individuals. However, social capital also makes sense in relation to social sustainability, when it relates to community or society as a whole. In fact, the transition of the concept from an individual asset to community resource was initiated by Robert Putnam. He made it possible to speak of the “stock” of social capital possessed by communities and even nations and the consequent structural effects on their development. It has been argued that social capital as a property of communities, cities and nations is qualitatively distinct from its individual versions (Portes, 2000, see also Fukuyama, 2000). According to Portes (Portes, 2000), this relationship has never been properly theorized, giving rise to the present state of confusion about the meaning of the term. It in fact refers to anything and everything, once it is an asset of children in intact families; next it is an attribute of traders’ networks; then it becomes the explanation as to why entire cities are better governed and economically flourishing than others.

Putnam (2001, p. 25), notes the decline in social capital in the US in the 1990, but also argues that “it is within our power to reverse” this decline. Fukuyama (1996, p. 16) argues that countries such as Japan and Germany have high levels of social capital, that economists need to take into account relative endowments of social capital when calculating comparative advantage of nations and that “where there is a deficit in social capital the shortfall can be made good by the state” (Fukuyama, 1996, p. 16–17). For both of these authors, social capital is a necessary condition for economic growth.

It is widely accepted that social economists build their foundations on the sociological concepts of Bourdieu and Coleman, while mainstream economists consider Putnam’s association activity as more relevant. Putnam (2001, p. 23) makes a very important observation about social capital, he considers it to have “forceful, even quantifiable effects on many aspects of our lives” and believes it is more than just “warm, cuddly feelings or frissons of community pride”. Quantifiable aspects of social capital are identified in the literature as

being: lower crime, improved longevity and less corrupt and more effective government (Putnam, 2001), better education (Coleman, 1988), enhanced economic achievement through increased trust and lower transaction costs (Fukuyama, 1996) and better health (Wilkinson 1996).

As pointed out by Woolcock (2001, p. 12), all this means that well-connected people are more likely to be 'housed, healthy, hired and happy'. In this research I will explore at how mining influences the levels of social capital in relation to such characteristics.

Trust and social cohesion

Trust and social cohesion are the two of the main concepts associated with social capital that also constitute the basis for a socially sustainable community.

High levels of trust among community members have always been seen as essential for sustainable communities. It is believed that trust is an outcome of the existing social capital itself (Woolcock, 2001) and a component of the shared values that constitute the social capital (OECD, 2001). The constitution of social capital in general is related to individuals or in other words is seen to be a property of intimate social networks. This is what Putnam calls "thick" trust, it is embedded in personal relationships that are strong, frequent and nested in wider networks and are also based on personal experience (Putnam, 2001, p. 136). However, Pretty and Ward (2001) argue that it can be reinforced by sanctions which may be applied to those who flout social norms or fail in their social responsibilities. Putnam describes this as "thin" trust or generalized trust. It extends beyond one's actual network, into a more implicit sense of common networks and assumptions of eventual reciprocity. The "thin" trust is based on community norms, therefore if community connections deteriorate, it decreases in effectiveness and value (Putnam, 2001, p.136). Fukuyama (2000) talks about "networks of trust", and considers traditional and strong in-group relations to be unhealthy because they may result in social isolation and corruption.

Social cohesion as an attribute of the social fabric is another important prerequisite for socially sustainable communities. It is considered to contribute to strong, fair and just societies for present and future generations (Lister, 2000).

Broadly speaking, social cohesion is viewed as the "glue" that brings people together in a society. Emile Durkheim (1997a) was the first to use the idea of social cohesion, considering

it to be an ordering feature of a society. He defines it as the interdependence between the members of the society, their shared loyalties and solidarity. Social cohesion builds on strong social relations, shared values, common identity and a strong sense of belonging. Durkheim distinguishes between “mechanical” and “organic” solidarity. In a traditional society, social interactions are generally built on a kind of “mechanical solidarity” among its members which arises from the relative homogeneity of their activities. As society develops, interaction shifts towards “organic solidarity” as people engage in different, specialised labour.

Grunberger and Omann (Grünberger & Omann, 2011) link social capital directly with social cohesion. They argue that social capital generally represents the degree of social cohesion which exists in communities. The OECD (2001) defines social capital as encompassing “networks, together with shared norms, values and understandings which facilitate cooperation within or among groups”.

According to the World Bank’s description of social cohesion, it manifests among individuals who are willing and able to work together to address common needs, overcome constraints and consider diverse interests. However, different societies have different understanding – shaped by the beliefs and values of their citizens – of what social cohesion actually means and how it can be fostered (OECD, 2011). Social cohesion is also a means that enables citizens to live in societies where they enjoy a sense of belonging (OECD, 2011). The absence of social cohesion on the other hand may result in instability. According to OECD (2011), social cohesion affects the various aspects of sustainability, especially in the context of sharp, frequent changes in external conditions (see OECD, 2011). The InterAmerican Development Bank (IDB) observed that in Argentina for example, at the time of the crisis in the early 2000s, society’s capacity to organise itself – reflecting high levels of social capital – produced externalities that were essential to meeting the basic needs of population and beneficial to the chances of an economic recovery (IDB, 2006). The OECD research on social cohesion (OECD, 2011) also identifies that the natural resilience of societies should be supported with appropriate policies in order to address vulnerabilities if social cohesion is to be maintained.

The discussion above shows that social capital is, in most of its manifestations intangible, transferable, convertible, can be productive and also allows for investments. It relates to individuals as well as organisations, relationships and norms and in fact is the essence that glues together the various functions and institutions of the social realm. As a key fundament

of social sustainability, social capital should be fostered in order to maintain and provide ground for a healthy and functional social fabric.

As demonstrated so far, social cohesion and level of trust form key aspects of a socially sustainable community. By examining these essential characteristics, the study aims to explore whether and how mining influences this aspect of community's sustainability.

The discussion of CSR in the section to follow completes the theoretical framing of the methodological concepts informing the research.

3.4. Corporate social responsibility

After the 1992 UN Earth Summit and 2002 Johannesburg Summit on sustainable development, the interest in voluntary initiatives and corporate self-regulation as contributions by the private sector to the goals of sustainability and sustainable development led to a conceptual shift in business ethics and serious re-thinking of the role of business in contemporary society. Even though companies have been intentionally making philanthropic contribution to society for a long time, social problems in general were considered to be a responsibility of governments. Recently, however, business has started to experience increasing pressure to broaden its accountability for achieving social outcomes as society started to lose faith in the private sector's ability to contribute towards social and economic progress through the provision of employment and technical services. The increasing social and ecological concerns compelled business to take responsibility about the social well-being⁴ of the community in which it operates and/or whose resources it uses, including natural, human, social etc. These dynamic changes in the vision for future development associated with sustainability led to an increased socially and ethically responsible practices described under the concept of Corporate Social Responsibility.

The Corporate Social Responsibility (CSR) agenda has existed for quite some time now; it took shape back in the 19th century in the U.S. with the emergence of the individualist philanthropy of the Carnegie Mellon and Rockefeller families. For a long time, individual philanthropy was the key pillar of CSR, before it evolved into corporate philanthropy and later on into corporate community investment. What CSR implies today has changed significantly from its origins. The concept has remarkably evolved since Friedman's

⁴ Social well-being is understood as quality of life and standards of living

definition: *“There is one and only one social responsibility of business - to use its resources and engage in activities to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud”* (Friedman, 1970, p. 133). CSR expanded significantly during the 1980s and in the 1990s, concepts, such as strategic giving, cause-related marketing, international donations, employee volunteerism, global corporate citizenship and corporate social investment, emerged to characterise many CSR initiatives (Carroll, 1999). Their beneficiaries included education, culture and the arts, health and human services, civic community, international donees, community partners and NGO partners (Muirhead, 1999). By the 2000s the emphasis on theoretical contributions to the concept and meanings of CSR have given way to empirical research on the topic, and interest spluttered away from CSR into related topics such as stakeholder theory, business ethics, corporate citizenship and sustainability.

The aspect of CSR that relates to social sustainability encompasses human rights, employee volunteerism, philanthropy, community development, corporate governance, workplace issues, education and training. However, it cannot be limited to only this, some CSR issues relate also to economic impact of business operations, relationship with government agencies, supplier-customer relations, environmental and social reporting, transparency and communication.

Conceptually, CSR incorporates a wide range of different but similar theories and concepts. Many of them overlap, others are related to particular aspects of the CSR agenda and can be specific to the particular nature and location of the business⁵. Mining companies have been renowned for their commitments to CSR and contribution towards communities in which they operate. However we need to understand how they do it, what visions they incorporate into their core business values and moreover how this impacts on local communities where business is located. Thus a possible analogy between mining CSR and its role for sustainability could be framed. Before I enter into studying this relations and discussing the key aspects of CSR, I will define the CSR concept.

⁵ Later in the chapter relevant CSR theories, concepts and reporting mechanisms related to the social sustainability agenda are discussed in more detail.

Defining CSR

The last decade has seen rapid changes in the scope and nature of CSR. The rising community expectations that companies will make a wider contribution to community wellbeing, corporate response to poor image or lack of trust and the increased interdependence between business and communities, as well as the emergence of international standards and guidelines requiring new approach towards social issues and development are only some of the reasons for the rapid expansion and development of the CSR phenomenon.

However, there is not yet a simple and unified definition of what it means. The concept of CSR is now believed to be an umbrella term where competing, complementary, and overlapping meanings such as corporate social performance, corporate social responsiveness, corporate citizenship, ethical business practices, stakeholder management, sustainable business practices, stakeholder theory and corporate community investment, are synonymously used to define CSR activities (Matten & Crane, 2005; Carroll & Shabana, 2010). Most of the existing definitions focus on the content of CSR activities and what the organisations do as part of their social obligation to society. While analysing 37 existing definitions of CSR from both academic literature and company web-sites, Dahlsrud (2008) outlines five core dimensions – environmental, social, economic, stakeholder and volunteerism. He finds out that stakeholder and social dimensions have the highest ratio of 88%, followed by the economic 80%, while the environmental scores 59%, which demonstrates that business today is really concerned with the relationship it has with society. This is even more relevant to the mining industry for which the success of their business is closely related to the interactions with host communities.

There are various existing definitions of CSR; one of the most comprehensive current definitions of CSR is provided by the World Business Council for Sustainable Development (WBCSD), which puts in its centre improvements of the quality of life and contribution to well-being.

“Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large.”(Holme & Watts,2000, p. 8)

The definition, provided by the Guidance Standard on Social Responsibility, ISO 26000, stresses the ethical aspect of CSR and focuses its understanding again around contribution and improvement of life.

“Social responsibility is the responsibility of an organisation for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour that:

- *contributes to sustainable development, including the health and the welfare of society;*
- *takes into account the expectations of stakeholders;*
- *is in compliance with applicable law and consistent with international norms of behaviour; and*
- *is integrated throughout the organisation and practised in its relationships.”*

*(ISO, 2010) Guidance Standard on Social Responsibility,
ISO 26000. 2010:3.*

However, companies today are encouraged to promote ethics, fairness, transparency and accountability in all their dealings. They are expected to keep generating profits while maintaining highest standards of governance within and outside the company. Hence, business has to keep its activities attuned to society’s ethical, legal and communal aspirations (Jamali, Safieddine & Rabbath, 2008). The debate about what CSR means and what it is related to has been taking place under the broader umbrella of “business and society” or with the focus on “business ethics” (Carroll, 2008). Most recently, it has been associated with the sustainability agenda and the notion of sustainable development. Warhurst and Mitchell (Warhurst & Mitchell, 2000) argue that CSR nowadays relates primarily to the idea of companies seizing and targeting capabilities that they have built up for competitive advantage to contribute to sustainable development goals in ways that go beyond the traditional responsibilities to stakeholders, employees and the law. They identify several reasons for this shift:

- Globalisation, liberalisation and increased foreign direct investment world-wide;

- Societal pressures, which are increasingly expressed as demands to address quality of life impacts, consultation, accountability and disclosure, and are sometimes pushed by special interest groups (e.g. NGOs);
- Regulations;
- Financial drivers;
- Supply chain pressure, which includes purchaser's growing requirements for audited and verified environmental and, more recently, social proficiency;
- Peer pressures from other companies and reputational management;
- Internal pressures from employees and shareholders; and finally;
- The natural dynamic of environmental change itself.

Source: (Warhurst & Mitchell ,2000, p. 92)

All these reasons apply equally to mining companies and their operations.

Moon (2007) argues that both CSR and sustainable development are contested concepts because their meaning is inherent part of the debate about their application. Both concepts are internally complex and highly contextual in terms of their temporal and societal settings (Moon, 2007). They differ according to the national social, economic, governance and environmental systems in which they are located. He also argues that they are both subject to attention cycles in which events or findings give them urgency, organisations respond and adapt, new mores become “ business as usual” and their salience diminishes again until a new set of issues re-energizes the cycles.

In theory, CSR considers private companies as potentially important development agents, particularly in partnership with the government and civil society groups. It is hard to find a simple definition of CSR in the existing academic literature, but in general, CSR has become the demonstration of a company's commitment to minimise negative impacts associated with business operations and processes, which it deems could affect society and the environment (Colantonio, 2007). Business should serve society by contributing to social needs and satisfying social expectations towards business. Corporate reputation is also related to acceptance by the community where a company is operating (Lewis, 2003). Freeman et al. (Freeman, Velamuri & Moriart, 2006) suggest that the main goal of CSR is to create value for stakeholders, including the local community. Definitions of CSR also vary according to the different practical orientations of corporations and companies towards their responsibilities.

Before I proceed to framing a working definition of CSR applicable to this study, I explore existing different theories and concepts, related to corporate responsibility to society.

CSR theories and concepts

As already pointed out, CSR relates to a number of concepts and paradigms that vary according to the different social, environmental and ethical impacts for which companies are held responsible. Melé (Mele, 2008) identifies four contemporary mainstream theories about the responsibility of business in society. They include: (1) corporate social performance, (2) shareholder value, (3) stakeholder theory and (4) corporate citizenship. Each of these theories is an extensive concept on its own and relates to a particular aspect of CSR. As in this thesis I focus on the contribution that business makes to the long-term development of the immediate communities in which it operates, and also as I take primarily interest in the social aspect of the sustainability agenda, I do not discuss shareholder value theory as it is outside the scope of this research. Hence, in this section I discuss the concepts of corporate social performance (CSP), stakeholder theory and corporate citizenship in relation to how they relate to the social sustainability agenda.

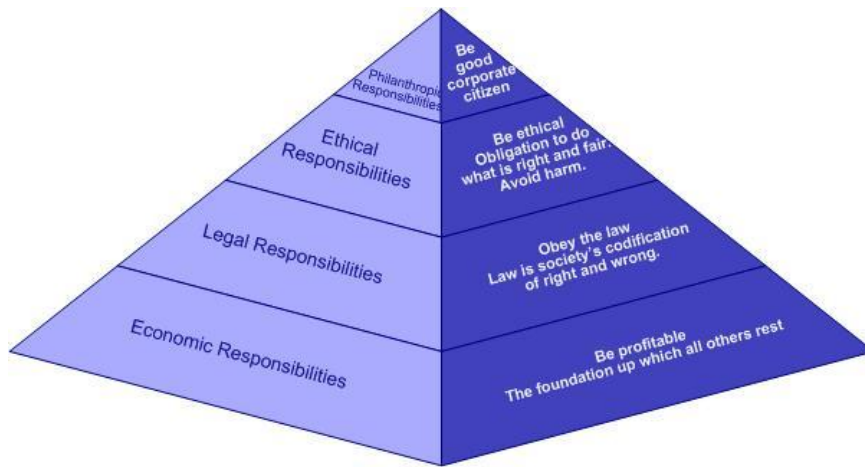
Corporate social performance

Corporate social performance (CSP) is grounded in sociology and maintains the notion that business apart from wealth creation also has responsibilities for the social problems created by business or by other causes, beyond its economic and legal responsibilities (Mele, 2008). In other words, CSP implies altering corporate behaviour to produce less harm and more beneficial outcomes for society and its people (Wood, 1991). This includes ethical requirements and discretionary of philanthropic actions carried out by business in favour of society.

Carroll (1979) who first introduced the CSP concept suggests that the entire range of obligations that business has to society must embody economic, legal, ethical and philanthropic categories. He develops a CSR pyramid in the basis of which are the economic responsibilities of a company. According to him, profitability forms the foundation upon which all other responsibilities rest. The second dimension of the concept refers to being responsible to the law. Then, comes the obligation to do what is right and fair and avoid any harms if possible, and the last bit of the pyramid underlines the importance of being a good

corporate citizen and contribute resources to the community and improved quality of life (see Figure 2).

Figure 2. Carroll's CSR Pyramid



Carroll's CSR Pyramid

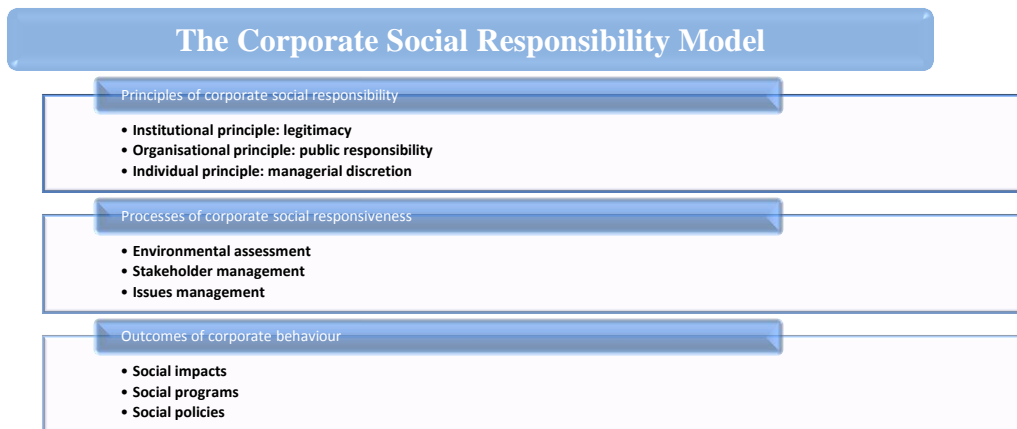
Source:(Carroll, 1991)

Another researcher, namely Wood (1991) proposes one of the most representative models within this theory. She introduces a CSP model, which is a synthesis between (1) principles of CSR, (2) processes of CSR and (3) outcomes of corporate behaviour. She turns Carroll's (1979) responsibility pyramid upside down to include the interconnection between corporations and society and suggests that the principle of legitimacy becomes effective on the 'institutional' level which states a business must not use its power without justified reasons. From the 'organisational' level, the principle of public responsibility suggests firms will be responsible for their actions which affect the society directly or indirectly. Finally, on the 'individual' level, managers need to be constantly aware of the need to act according to moral points of view (see Figure 3).

The links between the three facets of the CSP model generate a new understanding of the business-society relationships. It specifies the responsive processes that include environmental assessment, stakeholder management, and issues management through which companies act out their involvement with the environment. This model allocates a special attention to the social impacts of business operations. According to Wood (1991), incorporating social impacts, policies and programs as the collective outputs of a company's

environmental interactions removes CSP from the category of wishful thinking and allows more pragmatic assessments to be made.

Figure 3. The corporate social responsibility model



Source: (Wood, 1991)

Stakeholder theory

Another theoretical concept that shapes the CSR framework and is at the core of the sustainability debate is the stakeholder theory. In general, it takes into account the individuals or groups with a “stake” into a company. In other words, stakeholders are groups and individuals who benefit from or are harmed by corporate actions (Mele, 2008).

R. Edward Freeman (Freeman, 1984) first introduced this concept in his book “Strategic Management: A stakeholder approach” in 1984. He integrates stakeholders into a coherent concept and defines them as “any group or individual who can affect or is affected by the achievement of the firm’s objectives” (Freeman, 1984, p. 25). Examples of stakeholder groups (beyond shareholders) are employees, suppliers, customers, creditors, competitors, governments, and communities. Developing the concept further, Freeman and collaborators (2006) suggested that the main goal of CSR is to create value for stakeholders fulfilling the company’s responsibility to them, without separating business from ethics. Endorsing the understanding that with the stakeholder approach economic, political, social and ethical issues should be taken into consideration, they propose ten principles of company stakeholder responsibility (see Figure 4).

Figure 4. Principles of company stakeholder responsibility

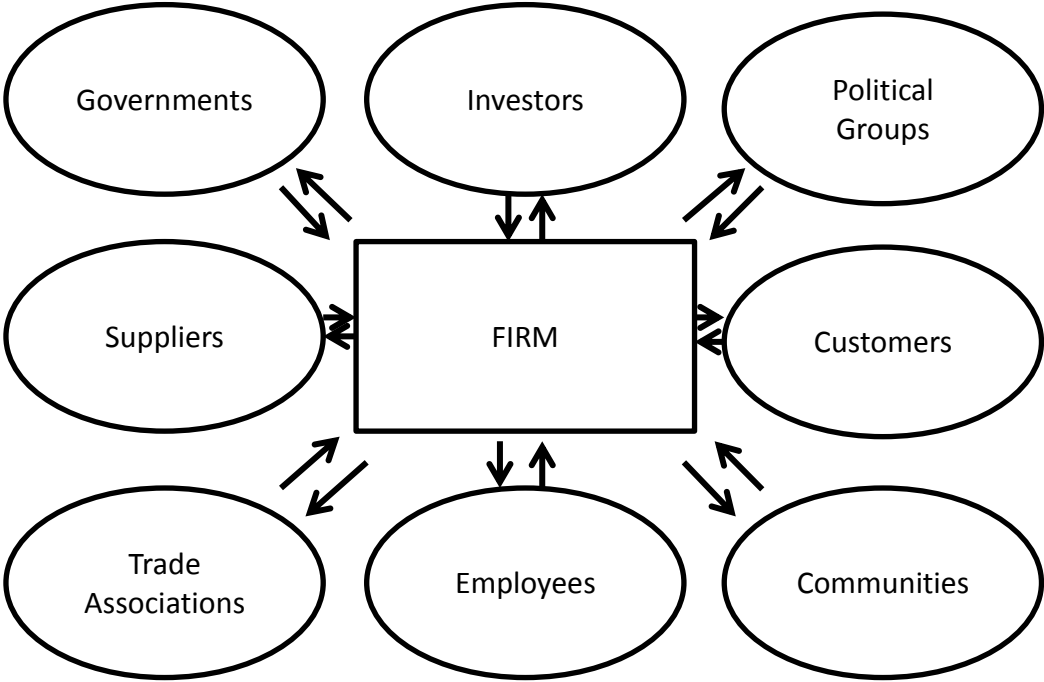


Source: (Freeman et al., 2006)

The CSR model which incorporates stakeholder theory extends corporate planning to include external influences on the firm that may assume adversarial positions. Adversarial groups are characterized as regulatory of special interest groups concerned with social issues (Roberts, 1992). Roberts (1992) also argues that the CSR allows the development of a strategic planning model to adapt to changes in the social demands of non-traditional power groups. Goodpaster (1991) distinguishes between strategic and moral groups. According to him, strategic stakeholders are able to impact on the profitability of the enterprise and consequently their interests demand attention. Moral stakeholders however, are the ones affected by the enterprise with relations being in both direction. He argues that management needs to consider the ethical grounds while formulating business strategies and therefore these two groups could hardly be mutually exclusive.

Donaldson and Preston (1995) propose a stakeholder model where all persons and/or groups with legitimate interests participating in an enterprise do so to obtain benefits, hence there is no prima facie priority of one set of interests and benefits over another (see Figure 5).

Figure 5. Contrasting Models of the Corporation: The Stakeholder Model



Source: (Donaldson and Preston, 1995)

According to Evan and Freeman (1993), stakeholder groups could be “narrow” or “wide”. Narrow stakeholders (those who are the most affected) usually include shareholders, management, employees, suppliers and customers that are dependent on the organisation's output. Wider stakeholders (those who are less affected) may typically include government, less-dependent customers, the wider community (as opposed to the local community) and other peripheral groups. Clarkson (1995) draws a distinction between primary, essential for the company’s survival (i.e. shareholders, investors, employees, customers and suppliers) and secondary stakeholders, those that are not essential for its survival. He also makes a key observation; in contrast to Evan and Freeman (1993) who consider stakeholders to be influenced by an organisation, he believes that in fact, stakeholders may influence the organisation and its policy. Moreover, stakeholders are not a constant and rigid entity, they

change over time, re-group and re-define their “stake” depending on strategic issues and personal and/or group views and understandings (see Freeman, 1984).

The practical aspects of the corporate social responsibility concept have significantly improved in the last few years and the stakeholder approach has been widely and successfully incorporated into the decision-making process and company’s management schemes.

Corporate citizenship and corporate community investment

The idea of companies and firms being “good citizens” and neighbours advanced with the progress of globalization and the sustainability debate. Even though it is considered to be a relatively recent phenomenon that emerged in the early 1990s, during discussions about business assumptions for social responsibility, Davis (1973) acknowledges that “social responsibility begins where the law ends. A firm is not socially responsible if it merely complies with the minimum required by the law, because this is what a good citizen would do” (David, 1973, p. 313). Corporate citizenship, in particular, has been mainly related to community investment and corporate philanthropy respectively.

Corporate community investment (CCI) is a term widely accepted by business within the CSR framework. According to Moon (2007), community investment is one of the most visible aspects of a company’s social responsibility agenda, can create an enabling environment for corporate citizenship and can also generate social capital (Moon, 2007). Community investment in general includes contributing money, products, services and human resources, such as time, skills and leadership, to meet social and economic needs of the community in which the business is operating. It is mainly directed towards meeting community’s expectations and needs and also finding solutions to problems and issues that the hosting community faces.

Traditionally, the community sector has relied on government grants or corporate donations for improving quality of life. Increasingly, communities have turned to the private sector for support, and contribution to their well-being. Partnerships between business and communities (most commonly community organisations) are being generated as an investment in social capital (Birch, 2003). Warhurst (2001) explains that to be a good corporate citizen and to operationalize its strategic role in contributing towards sustainable development, a company should implement sustainability indicators in their CSR. According to Loza (2004),

investment in capacity building and contribution to local communities through partnership with community organisations, incorporates aspects of the triple-bottom-line (TBL) and contributes to the overall sustainability of both businesses and communities in which they operate. Also, as it has been previously noted, community organisations contribute to a healthy and vibrant civil society, which is one of the key prerequisites for a socially sustainable community.

Historically what is today considered corporate social investment and community investment have been seen as corporate philanthropy (Centre for Corporate Public Affairs, 2007). For decades, business leaders have been involving their companies in philanthropic activities and donations to communities in which business operates. As a result, CSR developed as a concept from basic philanthropy by business leaders to a facet of modern business and management itself (Carroll, 1999). However, for leading contemporary companies, corporate philanthropy goes beyond mere donations (Bruch & Walter, 2005).

In recent years, academics and practitioners have been emphasising the strategic relevance of corporate philanthropy. Bruch and Walter (2005) identify four common approaches towards corporate philanthropy: (1) peripheral, (2) constricted, (3) dispersed and (4) strategic. The peripheral philanthropy is driven mainly with external demands and stakeholders' expectations, such strategies are attempting to translate positive reputation effects into concrete bottom-line impacts. Using synergies between companies' main activities and their charitable activities is what they call constricted philanthropy. Within this approach, companies harness their core competences for social purposes; however, external stakeholder perspectives are largely neglected. This approach could be useful in some circumstances but it lacks strategic orientation and has limited impact on companies' competitive situation. The general lack of strategic direction in corporate community investment is referred to as dispersed philanthropy. Such initiatives are largely uncoordinated. As a result companies get involved in numerous small projects without a guiding theme, funding is normally provided upon request without any clear idea what the actual contribution towards a cause or the community as a whole is. Within this approach the negative impacts of the peripheral and the constricted philanthropy are further multiplied. Dispersed philanthropy most often occurs in the realm of corporate donations. Bruch and Walter (2005) also indicate that this approach is often influenced by the personal interests of the board of directors and board members. Strategic philanthropy is pointed out by the authors as the best approach as it allows for the

alignment of corporate expertise with philanthropic activities, while also taking into account stakeholder and market expectations. Hence, CSR entails a mind-shift towards constructive engagement and encourages contribution to quality of life, which encompasses various aspects of the social environment. Mining companies are renowned for supporting communities in which they operate. Within the positive realm of mining impacts, contributions to quality of life and enhancement of socio-economic conditions have been widely recognised (Freudenburg, 1992; Freudenburg & Gramling, 1998; Kapelus, 2002; Becker & Vanclay, 2003; Lawrie et al., 2011 among many others).

In recent years, the CSR performance of mining companies has moved into the focus of various organisations and has been a subject of detailed guidance and reporting frameworks. In the next section codes, guidelines and indices that lead the development and practical implementation of the concept are presented.

Reporting frameworks, performance standards and sustainability principles

As pointed out, the evolving CSR agenda is driven by a global shift in the way the role of business is perceived. In the context of globalisation and the challenges of sustainable development, business is increasingly seen as a crucial element in the process of social transformation. The growing emphasis among government organisations, in particular the United Nations (UN), that business and governments have to establish “partnerships” for the creation of a better world based on sustainable principles brought into life a number of initiatives promoting the involvement of business into the sustainability agenda and reassuring the role of business for sustainable development.

Over the last fifteen years, a plethora of sustainable development principles and social performance reporting frameworks have been established such as the Global Reporting Initiative (GRI), United Nations Global Compact, the International Council on Mining and Minerals (ICMM) Sustainable Development Framework and the Australian minerals industry framework for sustainable development Enduring Value and International Finance Corporation (IFC) Performance standards, the Equator Principles. These documents also appear to be the focal point of mining industry’s commitment to sustainability and social performance and can be divided into two main categories: (1) voluntary reporting frameworks and (2) reporting frameworks aligned with financing mechanisms. As these are the key

guidelines for mining companies to develop and report on their social performance, the aforementioned frameworks will be outlines further in this sections.

Voluntary reporting frameworks and principles

The voluntary reporting frameworks have been developed by non-governmental organisations advocating and promoting sustainability. The key voluntary reporting frameworks relevant to the mining industry at international level are the Global Reporting Initiative (GRI), United Nations Global Compact, the International Council on Mining and Minerals (ICMM) Sustainable Development Framework. At a local level in Australia, these are represented by the Australian minerals industry framework for sustainable development Enduring Value. Each of these is presented below.

Global Reporting Initiative

The **GRI** guidelines are the leading global reporting standards on sustainability. The framework applies to corporate businesses, public agencies, smaller enterprises, NGOs, industry groups and others and enables them to measure and report on four key sustainability area– economic, environmental, social and governance performance (see Table 6). GRI aims to promote transparency and accountability in sustainability performance and encourage continuous improvement . The first version of GRI framework was launched in 2000 and since then it has been continually revised, improved and now it contains supplements covering financial services, logistics and transport, mining and metals, public agency, tour operators, telecommunications and automotive, energy etc. The Mining and Metals Sector Supplement was released in March 2010. It includes reporting tools that are specific for the mining industry and gives the opportunity to all reporters to describe their own scope of operation. (GRI, <https://www.globalreporting.org>)

Table 6. GRI mining and metals sector supplement

GRI Mining and Metals Sector Supplement
<p>Economic</p> <ul style="list-style-type: none"> • Economic performance • Market presence • Indirect economic impacts
<p>Environmental</p> <ul style="list-style-type: none"> • Materials

- Energy
- Water
- Biodiversity
- Emissions, Effluents and Waste
- Products and Services
- Compliance
- Transport and
- Overall

Labour Practices and Decent Work

- Employment
- Labour/Management Relations
- Occupational Health and Safety
- Training and Education and
- Diversity and Equal Opportunity

Source: GRI Sustainability Reporting Guidelines & Mining and Metals Sector Supplement Version 3.0/MMSS Final Version <https://www.globalreporting.org/resource/library/MMSS-Complete.pdf>

ICMM Sustainable Development Framework

The International Council on Mining and Metals is the peak industry body, established in 2001 as a result of the Mining, Minerals and Sustainable Development (MMSD) project. It serves as an agent for improving the sustainable development performance of the sector.

The ICMM Sustainable Development Framework (see Table 7) includes 10 basic principles on mining and sustainability, developed in conjunction with leading international standards, such as the Rio Declaration, the Global Reporting Initiative, the Global Compact, OECD Guidelines on Multinational Enterprises, World Bank Operational Guidelines, OECD Convention on Combating Bribery, and the Voluntary Principles on Security and Human Rights.

Table 7. The ICMM Sustainable Development Framework

ICMM Sustainable Development Framework

10 Principles for sustainable development

- Principle 1: Implement and maintain ethical business practices and sound systems of corporate governance
- Principle 2: Integrate sustainable development considerations within the corporate decision-making process
- Principle 3: Uphold fundamental human rights and respect cultures, customs and values in dealings with

employees and others who are affected by our activities

- Principle 4: Implement risk management strategies based on valid data and sound science
- Principle 5: Seek continual improvement of our health and safety performance
- Principle 6: Seek continual improvement of our environmental performance
- Principle 7: Contribute to conservation of biodiversity and integrated approaches to land use planning
- Principle 8: Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products
- Principle 9: Contribute to the social, economic and institutional development of the communities in which we operate
- Principle 10: Implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders

Source: ICMM, 2003, www.icmm.com

The ICMM framework strictly observes the GRI standards and all the 22 mining companies members have made a public commitment to report on an annual basis in-line with these standards.

The Australian minerals industry framework for sustainable development Enduring Value was introduced in 2005 and in its essence aligns with the ICMM principles on sustainability. Its key goal is to “assist the industry to operate in a manner which is attuned to the expectations of the community, and which seeks to maximise the long-term benefits to society that can be achieved through the effective management of Australia's natural resources” (Enduring Value, 2005, p. 4).

United Nations Global Compact

Following the UN Secretary General Kofi Annan’s challenge to business leaders to join an international voluntary initiative to support universal environment and social principles, the UN Global Compact was launched in 2000. It is the first and so far the largest corporate citizenship and sustainability initiative with over 8000 participants. It incorporates 10 key principles covering four main areas of the social realm – human rights, labour standards, environment and anti-corruption and derives its core principles from a number of key documents such as the Universal Declaration of Human Rights, the International Labour Organisation's Declaration on Fundamental Principles and Rights at Work, the Rio

Declaration on Environment and Development, the United Nations Convention Against Corruption. Its task is to encourage companies to embrace, support and enact within their sphere of influence a set of core values in the areas of human rights, labour standards, labour standards, environment and anticorruption (see Table 8).

The Global Compact pursues two complimentary objectives: to mainstream the sustainability principles in business activities around the world and to support meeting the UN Millennium Development Goals.

Table 8. UN Global Compact ten principles for sustainability

<p style="text-align: center;"><u>The Ten Principles</u></p> <p>The UN Global Compact's ten principles in the areas of human rights, labour, the environment and anti-corruption enjoy universal consensus and are derived from:</p> <p><u>Human Rights</u></p> <ul style="list-style-type: none">• <u>Principle 1</u>: Businesses should support and respect the protection of internationally proclaimed human rights; and• <u>Principle 2</u>: make sure that they are not complicit in human rights abuses. <p><u>Labour</u></p> <ul style="list-style-type: none">• <u>Principle 3</u>: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;• <u>Principle 4</u>: the elimination of all forms of forced and compulsory labour;• <u>Principle 5</u>: the effective abolition of child labour; and• <u>Principle 6</u>: the elimination of discrimination in respect of employment and occupation. <p><u>Environment</u></p> <ul style="list-style-type: none">• <u>Principle 7</u>: Businesses should support a precautionary approach to environmental challenges;• <u>Principle 8</u>: undertake initiatives to promote greater environmental responsibility; and• <u>Principle 9</u>: encourage the development and diffusion of environmentally friendly technologies. <p><u>Anti-Corruption</u></p> <ul style="list-style-type: none">• <u>Principle 10</u>: Businesses should work against corruption in all its forms, including extortion and bribery.

Source: United Nations Global Compact <http://www.unglobalcompact.org/>

Reporting frameworks aligned with financing mechanisms

These frameworks include the IFC Performance Standards on Environmental and Social Sustainability and the Equator Principles, they have been developed by financial institutions which incorporate meeting the sustainability agenda as a condition in their financial mechanism.

IFC's Performance Standards

In 2006 the International Finance Corporation (IFC) adopted its sustainability framework, which articulated IFC's strategic commitment to sustainable development and is an integral part of the approach to risk management. Consequently, performance standards incorporate strategic guidelines on environmental and social sustainability have been released. It promotes sound environmental and social practices to encourage transparency and accountability and contributes to positive development impacts. The IFC's Performance Standards, which are part of the Sustainability Framework, have become globally recognized as a benchmark for environmental and social risk management in the private sector (IFC, 2012). They serve as key reference for a wide range of businesses and industries, and have been observed and incorporated into the core business values of a wide range of organisations (see Table 9).

Table 9. IFC performance standards

IFC Performance Standards	
Performance Standard 1 Assessment and Management of Environmental and Social Risks and Impacts	<ul style="list-style-type: none"> • To identify and evaluate environmental and social risks and impacts of the project. • To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment. • To promote improved environmental and social performance of clients through the effective use of management systems. • To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately. • To promote and provide means for adequate engagement with Affected Communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.
Performance Standard 2 Labour and Working Conditions	<ul style="list-style-type: none"> • To promote the fair treatment, non-discrimination, and equal opportunity of workers. • To establish, maintain, and improve the worker-management relationship. • To promote compliance with national employment and labour laws. • To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain.

	<ul style="list-style-type: none"> • To promote safe and healthy working conditions, and the health of workers. • To avoid the use of forced labour.
Performance Standard 3 Resource Efficiency and Pollution Prevention	<ul style="list-style-type: none"> • To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To promote more sustainable use of resources, including energy and water. • To reduce project-related Green House Gas emissions.
Performance Standard 4 Community Health, Safety, and Security	<ul style="list-style-type: none"> • To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.
Performance Standard 5 Land Acquisition and Involuntary Resettlement	<ul style="list-style-type: none"> • To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs. • To avoid forced eviction. • To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. • To improve, or restore, the livelihoods and standards of living of displaced persons. • To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure⁵ at resettlement sites.
Performance Standard 6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	<ul style="list-style-type: none"> • To protect and conserve biodiversity. • To maintain the benefits from ecosystem services. • To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.
Performance Standard 7 Indigenous Peoples	<ul style="list-style-type: none"> • To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. • To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts. • To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner. • To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life-cycle. • To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in the IFC Performance Standard are present. • To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.
Performance Standard 8 Cultural Heritage	<ul style="list-style-type: none"> • To protect cultural heritage from the adverse impacts of project activities and support its preservation. • To promote the equitable sharing of benefits from the use of cultural heritage.

Source: IFC, www.ifc.org

The Equator Principles

The Equator Principles (EP's) were developed for adoption by financial institutions. They set core principles for their beneficiaries to act responsibly towards social and

environmental impacts and to commit to being good corporate citizens. The EPs were also launched in 2006. Their main goal is to serve as a common baseline and framework for the implementation by each adopting institution of its own internal social and environmental policies, procedures and standards related to its project financing activities.

“Equator Principles Financial Institutions (EPFIs) commit to not providing loans to projects where the borrower will not or is unable to comply with their respective social and environmental policies and procedures that implement the EPs. In addition, while the EPs are not intended to be applied retroactively, EPFIs will apply them to all project financings covering expansion or upgrade of an existing facility where changes in scale or scope may create significant environmental and/or social impacts, or significantly change the nature or degree of an existing impact.” (Equator Principles, <http://www.equator-principles.com/resources/Frequently%20Asked%20Questions.pdf>)

Linking SIA, Social sustainability and CSR

The discussion so far, indicates that in theory the way the mining and minerals industry acts within and impacts on communities has changed significantly over the last decade. On one hand, the progressing of the sustainability agenda within the industry’s business ethics challenged the mitigation focus enclosed in Social Impact Management Plans (SIMP) and shifted it towards contribution and enhancement. The growing emphasis on CSR brought companies to the realisation that their business cannot progress unless they meet specific stakeholders’ needs. For mining companies this means acquiring their social licence to operate (SLO), which incorporates the community perceptions of the acceptability of a company and its local operations (Thomson& Boutilier, 2011). On the other hand, SIA the main instrument for predicting and evaluating social impacts of mining, also registered a significant progress. It changed its focus by incorporating the views of various stakeholders into the process. Most importantly, it allows for understanding the local context rather than simply measuring it. Additionally, the recent sustainability guidelines on corporate social performance confirmed that the industry is not only concerned about mitigating the negative impacts but it declared its concern about the legacies it leaves behind.

It could be speculated, that there is already a tool in the face of SIA that signals the industry about what implications from its presence in a particular community have to be mitigated and managed. Social impact management plans, being part of the SIA process, are the instruments

that facilitate the process of mitigating and managing the consequences (most often the negative ones) of the presence of mining identified through the SIA. In general, SIMPs tend to focus on current issues but do not incorporate a long-term vision which is key for sustainability.

The contribution that mining makes to local communities has been mainly guided and shaped by the sustainability principles incorporated within the voluntarily adopted by the industry frameworks. To go beyond the mitigation agenda and contribute to the long-term development of the communities where it operates, the industry should be able to first identify what are the opportunities for development and second what are the strengths of the local communities to take on these opportunities. As the basic SIA mainly focuses on identifying impacts, it is obvious that it is not within its capacity to capture these strengths and opportunities. Social impact and opportunity assessment (SIOA) has just been introduced as an instrument by the ICMM. It emphasizes the fact that in order to consider opportunities for contribution and sustainable development, the SIA model should take a community-development approach (ICMM, 2012, p. 133). Thus the focus of the perspective will be shifted from short and medium term solutions to long-term contribution. However, the tool indicates the process of monitoring and evaluation and focuses on the outcomes of the contribution made by mining industry but does not advice on measuring and considering the resonating impacts.

Further in this thesis by exploring the case study of Boddington, I analyse and link the social impacts of mining activities in general and the consequences of the contribution it is making to the local community.

3.5. Conclusion

In this chapter an attempt to extrapolate and position theories and concepts relevant to influencing the long-term sustainable development of communities impacted by mining activities was made. Social sustainability is an ambiguous concept that draws on a number of themes and paradigms, depending on the perspective a researcher takes and also the environment studied. It is a process and a goal, a dynamic concept based on practical understandings rather than deep theoretical constructs. Analyses and studies of social sustainability are often related to theories and interpretations of social capital and corporate social responsibility.

Social capital was discussed as a key fundament (prerequisite) of sustainable communities. It is a basis that is a community's possession. The levels of the different forms of capital and respectively the different types of social capital, to a certain extent predetermine how a particular community functions. However, the level of social capital and respectively other forms of capital can be influenced in a positive or negative way by a range of factors. Moreover, social capital is transferable, convertible, can be productive and also allows investments.

Corporate social responsibility has been interpreted as the practical dimension of social sustainability through a business perspective, as it is in fact associated with the core drivers and goals of sustainability as understood by business. CSR policies and practices can be utilised to contribute to the various forms of capital and more particularly social capital, which respectively builds towards meeting sustainability goals.

In the next chapter I propose a methodological approach that links the various concepts discussed in Chapters 2 and 3.

CHAPTER FOUR - METHODOLOGY

4.1. Introduction

The concepts outlined in Chapters 2 and 3 contributed to the detailed understanding of social impacts, the social aspects of sustainability and corporate social responsibility. However, each individual concept provides only a partial and specific view of social impacts. Moreover there is little that draws these views together particularly in the context of long-term sustainability. In this chapter I develop a methodological framework that incorporates the main insights from the overviewed concepts, and proposes a possible approach for linking these reviewed concepts. It helps a better understanding of the social impacts of mining related to long-term sustainability. Here I explain and justify the research methodology used to achieve the research objectives introduced in Chapter 1.

The chapter begins with justifying the research philosophy by outlining the two main research approaches in social sciences studies - interpretivism and positivism (Section 4.2). I proceed with discussing the research strategy (Section 4.3) and framing the research design (Section 4.4). Further, the methodological tools and techniques used in the study are outlined (Section 4.5). The chapter proceeds with defining and operationalising the key terms used as a basis for the methodological framework (Section 4.6). Sections 4.7 and 4.8 respectively discuss the limitations of the case study technique and associated ethical issues.

4.2. Research philosophy

There are two main research approaches in social studies. The first one argues that human society is subject to laws that exist independent of the human actors – this is known as positivism. The second – interpretivism believes that individuals and groups create their own versions of social forces. Positivists are mainly concerned with the confirmation rather than discovery and development of theories (Deshpande, 1983, Guba & Lincoln, 1989). August Comte (1998) considered as the father of positivism and sociology, introduced the important relationship between theory, practice and human understanding of the world. He maintained the argument that societies operate according to their own laws, very much as the physical world operates according to the gravity laws of nature. A classic example of positivist approach is the Durkheimian study of suicide, where by strictly followed scientific methods, he “measures” social structures and interprets ‘social facts’ (Durkheim, 1997b). Positivists

share the belief that there is a reality that exists quite apart from our own perception of it, although our knowledge of this reality may never be complete (Engel & Schutt, 2005). Empirical verification and the use of quantitative methods are fundamental for the positivist research approach. Its proponents understand and interpret the world within “scientific” terms and argue that the social world can be studied in the same way as the natural world.

The interpretivist sociology has at its core the idea that the world around us is based on three principles: consciousness, action and unpredictability. It comprehends the social reality as being subjective, constructed through meanings and understood through the interpretation of context-specific social facts. The interpretivist or constructivist approach emerged with the establishment of the foundations of modern sociology with thinkers such as Karl Marx, Wilhelm Dilthey and Max Weber. Its rise is associated with the German sociological school, mainly Dilthey and Weber, who argued that cultural sciences (*Kulturwissenschaft*) are different in kind than the natural sciences (*Naturwissenschaft*). While natural sciences require scientific explanation as they call it *Erklaren*, the goal of the cultural sciences is the grasping or the understanding (*Verstehen*) of the meaning of the social phenomenon. Proponents of these persuasions share the goal of understanding the complex world of lived experience from the point of view of those who live it. They believe that the reality is socially constructed and the goal of the social scientist is to understand what meanings people give to reality. The inquirer must elucidate the process of meaning construction and clarify what and how meanings are embodied in the language or actions of social actors. Schwandt (2000) suggests that “*to prepare an interpretation is itself to construct a reading of these meanings; it is to offer the inquirer’s construction of the construction of the actors one studies*’ (p. 189). This approach also emphasises the importance of exploring how different stakeholders in a social setting construct their beliefs (Guba & Lincoln, 1989). The interpretivists approach allows the use of various sources of information and even though it relies mainly on qualitative methods, quantitative data is not excluded.

The two philosophical approaches towards a research methodology are quite different in their nature and rely on different paradigms and research methods. A pure positivist approach was not suitable for the purpose of this research due to several reasons. First, there is a lack of existing theories that link the social impact literature with the social dimensions of sustainability and the related theories of corporate social sustainability and social capital. There are very limited theoretical frameworks connecting the above concepts to be tested.

Second, the research is considered to be exploratory in its nature and focus on practical applications and community's understandings about social impacts and long-term sustainability, rather than testing existing methodological frameworks. The positivists approach usually focuses on testing hypotheses rather than explaining a phenomenon. This particular study on the contrary aims to explore and explain existing phenomenon in its real life context. The main task is to provide an answer to the question 'what is going on there', without any set expectations and clarify a problem that has not yet been thoroughly understood. Therefore an exploratory research approach is chosen.

Social science exploration as defined by Stebbins (2001) is a "*broad-ranging, purposive, systematic, undertaking designed to maximize discovery of generalizations leading to description and understanding of an area of social life*" (p. 3). Exploratory studies are quite common when a researcher wants to gain a better understanding of the problem, while breaking the broader problem into smaller well-defined sub-problems. Within the exploratory research the phenomenon is not approached according to a set formula, the researcher adopts methods according to the nature and the setting in which the phenomenon is situated. It involves analysis of a large amount of relative unstructured information such as secondary data analysis and more in-depth methods such as case studies and surveys (Stebbins, 2001).

As this study tries to identify causes and effects of a social phenomenon and explore options for change or variation in response to some other phenomena, the exploratory approach was considered the most appropriate one. Hence, the case-study was identified as the best research strategy.

4.3. Research strategy

A case study is a research strategy that examines a single example of a phenomenon. It is aimed to catch the complexities of a single case. Yin (2011) argues that the need to use case studies arises whenever an empirical inquiry must examine a contemporary phenomenon in its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 1981). In other words, case studies are used to explore and investigate a contemporary real-life phenomenon through detailed contextual analysis of a limited number of events or conditions and their relationships. According to Yin (2011), the case study strategy seeks to produce an invaluable and deep understanding in new learning about real-world behaviours and their meaning. In this case the phenomenon is not isolated from its

context as the aim is to understand how processes are influenced by, and influence the context (Yin, 1984). Case studies try to provide answers to questions while focusing on contemporary events. The in-depth focus on the case, as well as the desire to cover a broad range of contextual and other complex conditions, produce a long list of topics to be covered. In this sense, case study research goes beyond the study of isolated variables. The relevant data is likely to come from a multiple and not singular sources of evidence, such as document analysis, interviews and discussions, surveys, direct and participant observations etc. It is important to note that this type of research is not only limited to qualitative methods, it may involve a mix of both qualitative and quantitative methods. In order to avoid subjectiveness of the study and guarantee equal representativeness of the various stakeholders within the social setting, a mixed method approach (see Section 4.5) is chosen for this. Definition and operationalization of key terms are developed below, before presenting the research design.

4.4. Definition and operationalisation of key terms

The focus of this research falls on a local community, located 130 km south-west from the capital city of Western Australia – Perth. Its detailed description is presented in Chapter 5, and some definitions of key terms used throughout the text are presented below.

Definition of community

When developing an inquiry, community can be approached as a value, as a geographic location and as a local social system. In sociology, various definitions have been designated to the term community. They all require the presence of the following common features: locale, common ties and social interaction. In this particular study, the community, which is the object of research, is defined as geographical location, or a place-based community. It is envisaged and understood as a group of interacting people/structures sharing common environment and geographic location. For the purpose of the study this means people residing within the physical boundaries of the town and shire of Boddington.

Being defined as a geographic location, the community of study is viewed as both value and local social system. Community as a value comes closer to the Tonnies' *Gesellschaft*, emphasising connectedness, social networks, mutuality and trust. The sense of “we-ness” (Bruhn, 2011) and the existing social networks comprise what has become known as social capital (see Section 3.3), which is a core aspect of the sustainability agenda. In order to explore community as a value, the level of social capital, which incorporates community's

cohesion and stability; connectedness, trust, participation, inclusion, and shared expectations in regards to current and future development, are explored.

Viewing the community as a social system requires investigation of how the system functions; this involves exploring community's capacity and mechanisms for contributing to economic diversification and its intentions and capabilities to operationalize the already provided advantages; the extent to which people are able to participate in decisions that affect their lives, the level of democratization and public participation in the decision-making that is taking place. However, to understand the social system, it is necessary to explore the factors contributing and/or influencing any changes that are likely to impact on future sustainability pathways, the community is likely to take. Therefore, within the scope of the research there is one more area of study – industry/**company** (in this case the two mining operations neighbouring the community).

Industry/company

Industry/company is treated here as a factor influencing the main research object i.e. the community. It is defined as an 'actor' bringing/introducing social change and presumably contributing to the emergence of social impacts and changes resulting in social transformations. It is also considered to be a factor influencing future development paths and level of sustainability. Not all industry presence in a community has such transformative power. It is usually related to large-scale operations that induce significant disruptions and changes in the everyday business as usual operation of a community.

4.5. Research design

Research design represents the framework into which the research fits depending on the theory and the nature of the research problem. This underpins all research activities (Walliman, 2006). To explore the complexities of the studied phenomenon, a mixed methods research approach is adopted.

Mixed methods research advocates the use of whatever methodological tools are required to answer the research question. It combines qualitative and quantitative methods into the research methodology of a single study (Tashakkori and Teddlie, 2003). This methodological approach offers a more comprehensive analytical technique than either quantitative or qualitative data analysis alone. It allows the researcher to use the strengths of both methods

and understand the studied phenomenon better, while answering the questions in both narrative and numerical forms. .

To meet the objectives of the study, the research process is divided into two parts – desk research or analyses of secondary data and field work.

Desk research

The desk research consists of gathering context specific information about the case study and data related to the research problem. The main goal of data collection process was to ensure that the secondary information refers to the two main research areas – that is community and mining industry. In order to respond to the key research questions of this study (see Chapter 1, p. 8), secondary sources, informing about social impacts of mining and contribution of mining to the local community are identified and analysed. Table 10 presents the secondary sources informing this inquiry.

Table 10. Secondary sources of information

Secondary sources of information informing about the social impacts of mining at a community level
<ul style="list-style-type: none"> • Companies’ SIAs • Needs analysis for the shires Impacted by Re-Opening of the Boddington Gold Mine, 2008 • Shire of Boddington Strategic Plan, 2009 • Plan for the Future 2009 -2013 • Boddington-Ranford Townsite Strategy, 2010 • Shire snippets for the period 2010 - 2011 • Minutes from the Local Council meetings for the period • Boddington SuperTown Interim Growth Plan, 2012 • ABS statistics (census data 2001 – 2011; community profiles)
Secondary sources of information informing about the contribution of mining to the local community
<ul style="list-style-type: none"> • Companies’ sustainability reports for 2011, both documents are publicly available accessed through the respective company’s websites • Companies’ SIAs (confidential documents) • Companies’ social investment policies (confidential documents) • Local community organisation web-sites (http://www.boddington.crc.net.au/ ; http://boddington.wa.au/; http://www.boddington.wa.gov.au/)

Government documents published before 2010 - Needs Analysis for the Shires Impacted by Re-Opening of the Boddington Gold Mine, 2008 Shire of Boddington Strategic Plan, 2009; Plan for the future 2009 -2013; Boddington-Ranford Townsite Strategy, 2010 and ABS data were the primarily sources of information setting up the local community context. The information contained in these documents served as a reference point for developing the second stage of the research process – the field work and also informed the thick description of the case study presented in Chapter 5. Documents published after 2010 (Boddington SuperTown Interim Growth Plan, 2012) helped monitoring the processes within the local community and identify problems and impacts of mining occurring within the local community at the time of research.

Data analysis

Data collected during the first stage of the research was analysed using qualitative document analysis (QDA) method. A key aspect of this type of analysis is that it involves a reflexive methodology in a mass-mediated age. It examines both printed and electronic documents and requires data to be examined and interpreted in order to draw out meaning, gain understanding and develop empirical knowledge (Corbin & Strauss, 2008, Bowen, 2009).

The QDA puts the emphasis on discovery and description rather than on mere quantity or numerical relationships between variables (Altheide, 1996, Berger 1982). The main focus is on themes and trends emerging in the course of study (Krippendorff, 2012). Its key aim is to identify and analyse documents for their relevance, significance and meaning (Altheide, 1996). Data collection is guided by the initial research questions but it allows for and expects other themes and trends to emerge throughout the study. Such type of analysis is oriented towards constant discovery and is not limited by preliminary set frames. This particular technique allows the explorer to pursue concepts that emerge in the context discovering process of research (Altheide, Coyle, De Vriese & Schneider, 2008).

This particular analytical approach is chosen in correspondence with the research philosophy guided by exploring a phenomenon rather than prescribing (see Section 4.3). It is less-time consuming, very cost-effective compared to other methods and involves data selection, instead of data collection (Bowen, 2009).

The analysis of the documents involves skimming, reading and interpretation. In general, it combines elements of content analysis and thematic analysis (Bowen, 2009). In this particular study data was approached using thematic analysis, which according to Fereday & Muir-Cochrane (2006) is “*a form of pattern recognition within the data with emerging themes becoming categories for analysis*”; in other words, this allows the researcher to capture phenomena in their real life context.

Field work

The second part of the research involved a lot of interactions with local residents, mining company representatives and governance representatives. This was an on-going process that involved conducting interviews, attending meetings and community events, initiating discussions, cooperating with other professionals in the field of community development and CSR.

In this stage a number of research instruments were used, including semi-structured interviews, free discussions and talks, community survey using a semi-structured questionnaire, participant observation, visit to the mine site.

Semi-structured interviews

In general, the semi-structured interview is the most common qualitative method of collecting information. It allows to focus on specific issues which respondents are asked to discuss. One of the big advantages of this method is that it encourages the discussion to go beyond the priorities of the interviewer and thus maximises the opportunity of obtaining information that the interviewee regards as important (Stephens and Leach, 1998). This particular method involves the use of a set of questions prepared beforehand, but intends the interview to be conversational. The interviewer can change the order of the questions or the way they are worded. The main job is to get the interviewee to talk freely and openly while making sure the researcher get the in-depth information.

I used the semi-structured interview approach to obtain initial perception of stakeholders’ opinion about the problem within the community. However, while trying to answer my questions the respondent representatives of both government and industry tended to do the so called “ritual talking”, which in this case meant providing ‘politically correct’ answers complacent with the represented institutional structures and philosophy. However, as time

progressed, the interviews slowly turned into free conversations which provided more valuable informative data, critical for the purposes of the study.

In total, 14 interviews were conducted in the course of the research, A list of the semi-structured interviews is presented in Table 11 below.

Table 11. List of interviews

Institution	Number of interviews	Dates
Company A representatives	3	Boddington, May, 2010; July 2010, August 2011
Company A representative	1	Boddington, August, 2011
Company B representatives	2	Boddington, April, 2010, July 2010
Company B representative	1	Perth, February 2012
Local government representatives	2	Boddington, February 2010, May 2010
Local government representative	1	Boddington, May 2010
Local government representative	1	Boddington, May 2010
Peel development commission representative	1	Boddington, April, 2010
Community organisation representative	2	Boddington, May 2010
Total	14	

Field observation

As part of the study, I also attended as an observant community meetings, regional development authorities meetings and a local council meeting. A field trip to the two mine sites was also conducted. The list of field observations is presented in Table 12.

Table 12. List of field observations

Event	Location and dates
Shire of Boddington Steering Committee meeting	Boddington, February 2010
Peel development commission working group meeting	Mandurah, December 2009; February 2010
Community groups' regular meetings at the Boddington Resource Centre	Boddington, May 2010
Mine sites visits	Boddington, August, 2011

Community survey

Sampling

The community survey was conducted in the period 6th of November – 10th of December, 2010. Because of its exploratory nature, a non-probability convenience sample was used. Convenience samples are widely used in exploratory research in the applied social sciences, as they are pragmatic, least time consuming and do not require a lot of resources (Gravetter & Forzano, 2008). Despite the fact that convenience samples are not considered to be representative, the recruiting approach used in this particular survey was absolutely random. A total of 56 people residing in Boddington region participated in the survey, but only people who reside in the Boddington-Ranfort township were able to participate in the survey. Two different approaches were used to recruit respondents who live in the town of Boddington.

The first stage of the community survey was conducted at the Boddington Lions Rodeo event on 6th of November 2011. As the event is unique for the area and attracts a lot of people not only from the near-by vicinity, but the whole Western Australia, it was difficult for the interviewer to identify local community members and invite them to fill in the questionnaire. However, there were 44 valid questionnaires completed by people residing in Boddington during the event. The number of refusals was negligible. Almost every resident approached to participate in the survey did agree to fill in the questionnaire.

The second stage of the data gathering was carried out between 15th of November and 10th of December, 2010. The questionnaire was mailed out to 80 Boddington homes randomly

selected from the Boddington Phone Directory Book. The response rate of the direct mail survey was 15%, which is normal for those kinds of surveys.

Survey instrument

The questionnaire design went through a couple of stages. The initial version of the questionnaire covered an extensive list of aspects of the social impacts of mining. After serious consultations with local opinion leaders the list was shortened in order to capture and explore the essential for the research topics. The final field version of the questionnaire consists of 16 questions and a demographic section covering the following areas:

- Community perceptions of social impacts of mining
- Understandings about contribution of mining
- Exploring possible scenarios in case mining in the area stops operation
- Measuring the community's social cohesion and levels of social capital
- Measuring the entrepreneurial spirit of the community

See Appendix 1 with the full list of questions.

Analysis of empirical data

Data collected through the field work was approached using both qualitative and quantitative research techniques. The results from semi-structured interviews and field observations were analysed using the QDA methodology. This approach was undertaken in order to identify patterns and themes related to the enquiry and to compare and later incorporate the findings into the themes identified during the desk research stage.

Data from the community survey was first analysed quantitatively, using SPSS (results are presented in Chapter 6). The results from the open-ended questions were further approached qualitatively, grouped into themes and incorporated within the bigger picture of the analysis.

Definition of respondents

Based on the different survey instruments and the mixed methods of data gathering, and to guarantee participants anonymity three main types of respondents were defined – (1) local residents, (2) local informants and (3) company representatives.

All people who participated in the community survey are referred as local residents. Local informants are local community representatives of both government and community. Company representatives include people representing the mining industry.

4.6. Limitation of the study

First, as I am interpreting social impacts through social sustainability perspective. I am focusing on social impacts, changes and transformations affecting the community as a whole and its members' quality of life as well as social impacts, changes and transformations related to its long-term development perspectives relevant to the sustainability paradigm.

Second, I fully acknowledge that registering social change processes and transformations requires longitudinal research. However, the study is limited in regards to time and available resources and it provides a snap-shot of the current situation. The interpretation of social impacts, changes and transformations relies mainly on people's perceptions and views on what is happening in their community. As mining is already happening, I am not trying to predict changes, but to obtain information on changes and transformations that are oriented to the long-term development of the local community.

4.7. Ethical Considerations

The research was at all times guided by the Australian Code for the Responsible Conduct of Research and Curtin University's Guiding Ethical Principles. As it involves interviews with people, Ethics A clearance was acquired, where all necessary specifications were outlined. All participants are adults. A written permission from each of the participants was obtained. They were fully informed about confidentiality issues, data storage and were given an information sheet explaining the purpose of the research.

4.8. Conclusion

This chapter presented the selection and justification of the case study research methodology. It argued for a mix method approach research design, including the sampling procedure, data analysis strategy and various steps to ensure the validity and reliability of this study. The following chapter focuses on the case study of this research

CHAPTER FIVE – THE CASE STUDY

5.1. Introduction

Australian social and economic development has been marked by mining. Since the gold rushes from mid-18th century, the mining industry has been playing a key role in framing the social and economic environment of the state. However, resource development is currently carried out in a more aggressive fashion than ever before, bringing into life new phenomena that completely change the nature of mining operations and the aftermaths they have on existing communities. Company towns, where the mining company is responsible for building or substantially financing local community infrastructure, the hit of the 1970s are part of history. Today, the industry preferences are to settle in already existing communities and if not possible, to construct temporary mining camps. Unlike other parts of the world where mining contributes and benefits from the local workforce, in Australia and particularly Western Australia the industry struggles to satisfy its needs with local employees and relies on non-resident work-force encouraging Fly-in/Fly-out and Drive-in/Drive -out.

This chapter introduces the mining context and the specifics of the case study. It begins with outlining the Western Australian mining characteristics and revealing the scale and importance of the industry in framing the social landscape of the state (Section 5.2). Section 5.3 provides an overview of the case study. Section 5.4 presents the local community profile and analyses the structural changes occurring as a result of mining.

5.2. Framing the context – mining in Western Australia

Mining has been a significant primary industry and a contributor to the Australian economy since colonial times. After being dismissed in the 1980s as emblematic of Australia's old economy, with prices for key resource exports at their lowest levels, it experienced a remarkable revival over the 2000s, when the rapid urbanisation and industrialisation of the emerging economies in Asia dramatically transformed the global commodity markets. From 2003 to 2011, global prices for Australia's resource exports (in US dollar terms) increased by more than 300 per cent, after being flat in nominal terms over the preceding two decades (Orsmond & Connolly, 2011, p. 112).

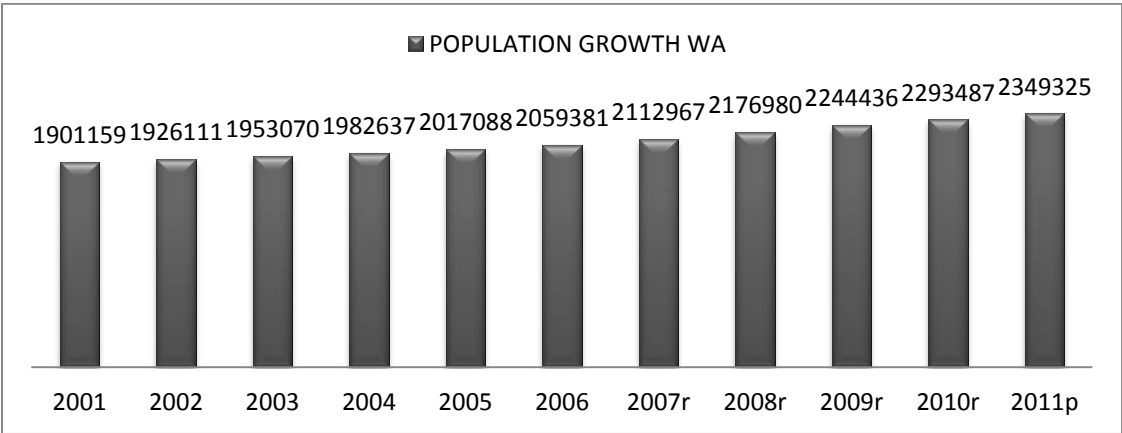
Mining is of a particular importance for the development of the Western Australian (WA) economy, which respectively experienced a phenomenal growth over the past decade. In

2010-11 the value of the WA mineral and petroleum industry reached a record high of \$101.2 billion (Department of Mines and Petroleum, 2011; Tonts, Plummer et al., 2011). Today, Western Australia has a large and extremely diversified commodity base. The state has some 513 commercial mineral projects, encompassing 893 operating mine sites and producing over 50 different mineral resources (Department of Mines and Petroleum, 2011).

The mining boom has not only contributed to the economic prosperity of the state but also has a significant implication on its social landscape. Western Australia is geographically the largest state in Australia, with an area of over 2,500,000 sq.km. Its capital Perth is one of the most isolated capital cities in the world. With a population of 2.35 million⁶ people, the state is a home of just over 10% of the Australia’s total population. The majority of the population is flocked in Perth – 74% and the rest is spread out between eight large non-metropolitan regions.

In the last decade, the WA population (see Figure 6) increased by 23.5%, in comparison to the 16.5% average population growth for the whole of Australia (ABS, 2012). The mining boom associated with extensive employment opportunities attracted a high percentage of overseas migration, which contributed 58% of WA’s population growth.

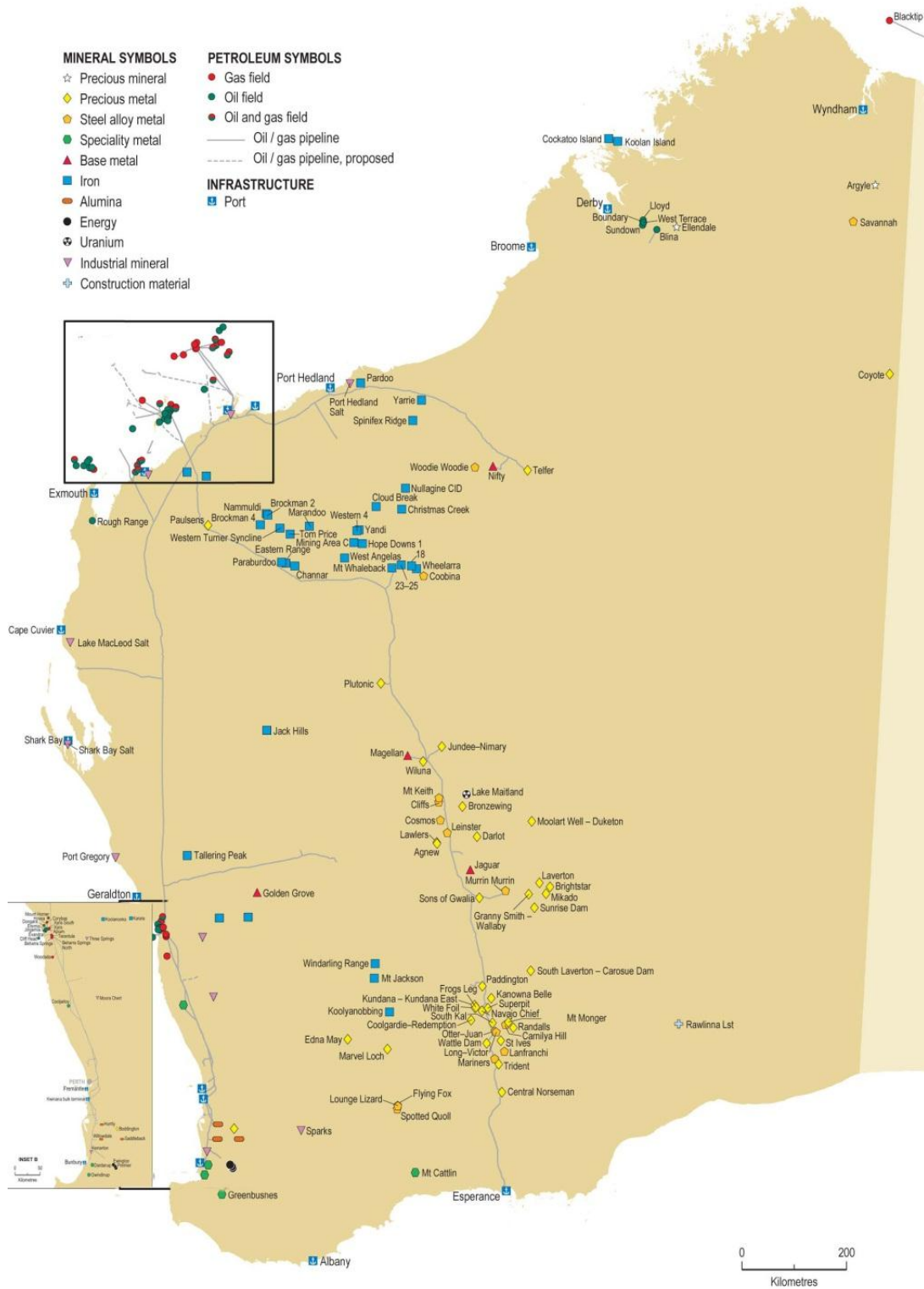
Figure 6. WA population (ABS, 2011)



According to a report by the Department of Training and Workforce Development (Department of Training and Workforce Development, 2011), WA achieved consistently strong 3% annual average employment growth rate with mining and associated industries such as construction and manufacturing being the main drivers for it.

⁶ ABS 2012

Figure 7. WA mining activities



Source: Department of Mines and Petroleum, Government of WA

However, agriculture is another primary industry with a key role in shaping the Australian social landscape. Up until the latter half of the twentieth century, agriculture was dominant in WA macro and micro economies (McKenzie, 2009). In the 1970, this sector contributed 70% of the total exports revenue, but by 1999 this share dropped to only 15% (ABS, 2001) to plunge even further down to 7% in 2008 (Department of Agriculture and Food, 2009). The significant decline of agriculture resulted in shrinking communities with aging population characterised with predominantly male residents (McKenzie, 2009). Beer, Maude & Pritchard (2003) report that according to the National Farmers' Federation, agricultural employment fell by 100 000 jobs between the 1950s and the mid-1990s but the rate of decline abated since the late 1970s. Over the 1980s Australia was the only country in the OECD to experience an increase in agricultural employment. In the 1990s, agricultural employment fell steeply, largely in response to drought. Between 1991 and 1996 employment in agriculture in non-metropolitan Australia decreased relatively modestly, by 1.5 per cent (Beer et al., 2003). ABS (2006) census data shows that 4% of WA population are employed in the agricultural sector.

Boddington, the place of the case study, is an area where the two industries – mining and agriculture provide the bulk of the local employment. The history of the settlement also reflects the major trends described for Australia and Western Australia in particular.

Typologies of mining settlements in Western Australia

The majority of mining settlements in Australia in general have more specialised economies than other types of settlements as their livelihoods are dominated by the resource extraction industries. One of the key challenges they face is their inherent vulnerability to volatile commodity price fluctuations, lifespan of the operations, corporate strategies of transnational companies and the exhaustion of their resource base (Tonts, Plummer et al., 2011).

A very distinct characteristic of Western Australia is that the majority of mining activities are concentrated in relatively remote areas, located at a significant distance from the state capital and away from already established communities. During the 1960s this contributed to the development of a number of closed or company towns across regional Western Australia, constructed, funded and administered by a single mining company rather than by local government (Cheshire et al., 2011). These settlements vary considerably in terms of resource base, size, location, history and socio-demographic structure (Tonts, Plummer et al., 2011). In

a number of local and regional economies, resource extraction forms the bulk of the economic base and often provides the sole justification for a settlement (O'Connor & Kershaw, 1999).

Other settlements which developed as existing agricultural towns, expanded in the wake of the minerals boom. While boosted by mining, they nevertheless maintained a more versatile and mixed economy (Cheshire et al., 2011). Boddington is an example of this.

Historically, mining communities have been more commonly understood and defined as ephemeral (Bell 1998), being communities of an occupation, rather than communities of a place (Dennis et al 1956, Bulmer, 1978), characterised with overlapping power networks (Hardesty, 1998). A large share of the early mining settlements established in the 19th century and more particularly those formed around gold mining did not last long. Some of those small towns such as Big Bell and Gwalia, have now turned into ghost towns, others such as Coolgardie after being once the third largest settlement in WA (after Perth and Fremantle), with a population of 15000 diminished to 800 people at present. The nature of the industry influenced the layout of mining communities and entailed the movement of people into a particular area, being in most of the cases dependant on a single economic activity and characterized with a large degree of reliance on the mining company (Bulmer, 1978). However, things have changed. For example, Mackenzie (2009) concludes that a mining company will now only establish a residentially based operation where there is already a pre-existing community nearby with at least basic services, and the location is considered 'liveable', meaning that there are services such as retail services, a school and medical post suitable for families to take up permanent residence if so desired.

Throughout the years, the image of the mining industry and mining communities has gone through various metamorphoses. Till recently, the most common perceptions of the public often associated the industry with the "get rich and get out" ethics, which leaves behind polluted and devastated sites, and depopulated settlements. The phenomenon of the traditional mining community (Dennis et al., 1969; Lucas, 1971; Bulmer, 1978) of the mid-20th century is characterized with physical isolation, economic dominance of mining, occupational homogeneity and social isolation, as well as sharply segregated family and gender roles. Even though there were communal leisure activities, work remained the main interest and topic of conversation. Economic and political conflicts between managers and miners were something common, nonetheless, there existed multiple and complex communal social relations: solidarity, shared histories of work and living. Communities' vitality and mechanisms to

sustain were somehow additionally predetermined by a relatively common geographical mobility of miners, while social mobility was rather rare (Knapp, 1998).

Historically, unlike North America, the focus on issues associated with socio-economic well-being and resource dependence in Australia has been of a relatively marginal scholarly interest (Tonts, Plummer et al., 2011). Issues that local communities around Australia are facing as a result of rapid and aggressive mining activities in recent years are progressively attracting academic interest (Storey, 2001; Beach et al., 2003; Evans et al., 2007; Pini et al., 2007; Rolfe et al., 2007; Esteves, 2008a; Franks et al., 2009; McKenzie, 2009; Petkova-Timmer et al., 2009; McKenzie, 2011; Lozeva & Marinova, 2010; Cheshire et al., 2011; Hajkowicz, et al., 2011; Carrington & Pereira, 2011; Stehlik et al., 2011; Brereton & Pattenden, 2007; Lawrie et al., 2011; Tonts, Plummer et al., 2011).

In the most recent literature, one of the main issues affecting rural communities is associated with the increasing reliance on non-residential working force (O'Connor & Kershaw, 1999; Storey, 2001; Beach et al., 2003; Rolfe et al., 2007; Petkova-Timmer et al. 2009; McKenzie 2011; Carrington & Pereira, 2011). This creates a qualitative distress within local communities, with population increasing overnight comprising predominantly of males (Lozeva & Marinova, 2010). Rapid increase of population puts pressure on housing availability and seriously burdens local infrastructure and service availabilities (Haslam-MacKenzie 2008; Lockie, Franettovich et al., 2009). Lack of facilities and infrastructure impacts on local employers' capacity to attract and retain employees and thus hinders the development of the local business environment (Lockie, Franettovich et al., 2009; Tonts, 2010). On the other hand, Lawrie et al. (2011) argue that the rapid expansion of the economy in resource boom towns leads to improving socio-economic conditions and reduction in welfare dependence. Nevertheless, the bulk of the Australian literature focusses on service provision, infrastructure and housing availability (Rolfe et al., 2007; MacKenzie et al., 2008), fly-in fly-out work arrangements (Storey, 2001; McKenzie, 2011), socio-economic wellbeing (Hajkowicz, et al., 2011; Lawrie et al., 2011; Tonts, Plummer et al., 2011) and indigenous people (Howitt, 2001; O'Faircheallaigh, 2009). Little attention has been paid to the qualitative changes in the local social landscape that are impacting on community social sustainability.

In earlier research, there has been a tendency to treat resource dependence as a uniform phenomenon rather than something highly nuanced and shaped by specific factors such as resource base, company structure, history and location. Studying the links between resource

dependence and socio-economic wellbeing Tonts et al. (2011) analysed 33 mining towns in WA with a population below 5500, using the 2006 Population and Housing Census data. They disaggregated the mining towns by commodity type and found that the highest level of employment concentration in the mining industry was generally linked to the production of iron ore, gold, nickel, and/or bauxite. Towns dependent on gold production and bauxite recorded the highest mean unemployment rate of 8.0% for gold and 6.6 % respectively for bauxite. Gold and bauxite operations also appeared to have the highest mean percentage of low-income households – 24.3 % in towns dependent on gold and 24% on bauxite. The analysis also revealed that mining towns in WA are characterised with generally lower levels of education, with only 28 % of people completing school to year 12 or equivalent, compared to 42.2 % at the state level. The research identified also that rates of mobility are higher than the rest of WA with little over 50 % living in the same area five years prior to the 2006 census (in comparison to 61% for WA). This study is particularly relevant to my research, because it outlines the key characteristics of mining communities within WA and allows the case study to be positioned within the bigger picture. Boddington has been considered an agricultural community for decades and locals still define it as a settlement related to agriculture rather than mining. However, it displays many of the characteristics identified by Tonts et al. (2011).

The bulk of scholarly work, that analyses resource dependent communities is predominantly focused on communities highly dependent on mining and tends to generalise patterns related to mining. However, mining communities are quite different in their nature. Analysing mining settlements in Australia, Maude and Hugo (1992) identified nine different types, based not only on economic performance but also on demographic indicators and dependence on mining employment (see Table 13). This appears to be a useful way to combine the multitude of unique circumstances surrounding mining operations and ways they affect communities and people. In this taxonomy, Boddington falls within agricultural communities with a significant component of mining.

Table 13. Types of mining communities – Western Australian focus

	Type	Example in Western Australia
1	Communities very highly dependent upon mining	Coolgardie, Cue, East Pilbara, Laverton, Leonora, Mt. Magnet, West Pilbara
2	Communities heavily dependent on mining	Collie, Port Headland, Roebourne
3	Communities dependent on mining and agriculture	Meekaratha, Menzies
4	Agricultural communities with a significant mining component	Boddington, Westnonia, Yilgarn
5	Service centres with significant mining component	Boulder/Kalgoorlie, Derby/West Kimberley
6	Manufacturing and service centres with a significant mining component	Not applicable
7	Manufacturing centre with some mining activities	Not applicable
8	Agricultural and service communities with some mining activity	Busselton, Capel, Murray, Serpentine/Jarrahdale, Waroona
9	Service centres with a small mining component ⁷	Not applicable

Based on Maude&Hugo 1992

The diminishing of the easy resources forced companies to look for other opportunities. With the advancement of technology it became possible difficult deposits to be mined, which led to a number of mining activities appearing in non-typically mining areas, neighbouring traditionally pastoral and agricultural communities.

In the next section I describe Boddington community, which is the case for this study.

⁷ Urban dominated areas with a very small mining component

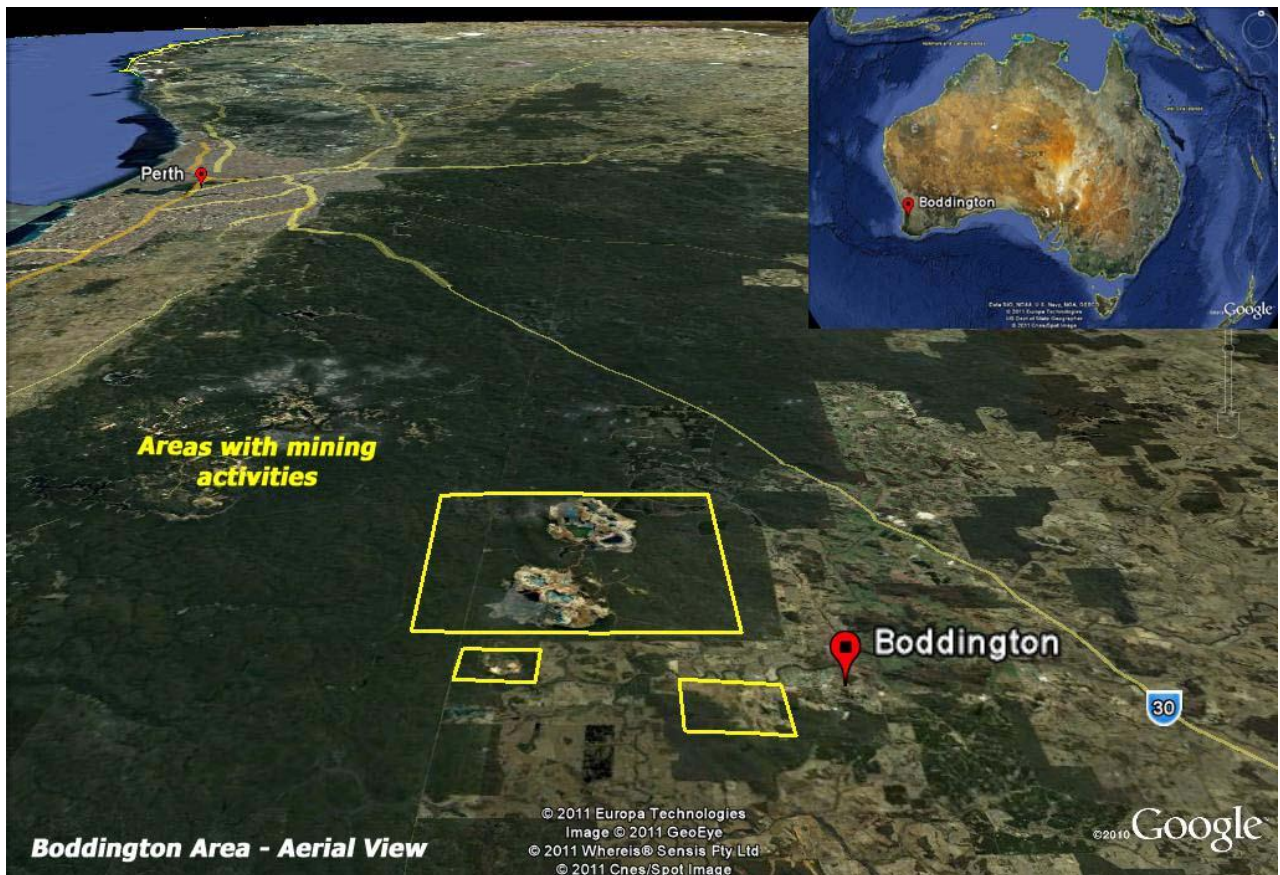
5.3. The case study

Boddington is a relatively young town established in 1912. It is located in the Peel region, 130 km South-East from the capital city of Western Australia – Perth, on the banks of the Hotham River. It was named after Henry Boddington, a shepherd who grazed his sheep on the banks of the river in the late 1800s. Established as an agricultural settlement the town went through periods of a rise and decline. After the devastating Dwellingup fires of 1961 which destroyed the local timber industry, the area declined slowly over time. By 1969 the railway between Dwellingup and Boddington, built to service the needs of the timber industry was closed and the town became a typical small service area for the surrounding district. Mining in the area began in the late 1970s, however for decades the district remained largely dependent on the agricultural sector. Although farming still features as a significant component in the local economy, its relative importance is fading with the advancing influence of mining. Considered as an agricultural community for decades, the town currently neighbours two mining operations – a bauxite mine on the south and a gold mine on the north side (see Figure 8).

According to the Maude & Hugo's (1992) classification of mining communities, Boddington is defined as an agricultural community with a significant component of mining. Such communities seem to be small mining towns located in larger agricultural areas, where agricultural employment outnumbers significantly mining jobs. However, as it is discussed later in Section 5.4, Boddington is shifting from this category towards a community dependent on mining and agriculture.

Mining communities like Boddington are quite unique for the Western Australian landscape; where the majority of the contemporary mining settlements have been established because of mining and are located in remote or very remote areas within the state. Their development and life have been closely linked to the availability of natural resources in the area and mining has been used as a prerequisite for their existence. Boddington, however has a few characteristics that make it differ from the majority of case studies described in the literature. For decades it has been identified as an agricultural community with a component of mining. However, as it will be demonstrated further in this analysis, over the years and with the recommencement of the gold mine, the shire is going through a transformation which is slowly turning it from an agricultural community with a component of mining to a typical mining community.

Figure 8. Mining activities around Boddington



Bauxite mine

Mineral deposits in the area were first discovered in 1957, however it was not until 1979 that mining started with the development of the Boddington bauxite reserve. The bauxite mine has been operational for more than three decades but its impact on the township is relatively low as it is small in scale, employing approximately 200 people from around the area. The mine site is situated immediately south of the town and provides bauxite ore via overland conveyor to the refinery near the town of Collie. The mining area is located near forested and agricultural land. However, with the new expansion of the mine the operation is going to surround the town on both south and east sides. This is going to add additional 25 employees to the local workforce of the bauxite operation. The mineable reserve of the deposit is estimated to be 50 years (after commencing operation in the late 2011).

Gold mine

The Boddington gold mine is located 17 km north of the town. The gold deposit was discovered in the early 1980s and mining activities began in 1987. Between 1989 and 1991 the mine was the largest gold producer in Australia. The easily minable resources were

depleted in November 2001 and the processing ceased. Meanwhile in 1994, a large bedrock resource was identified, followed by a long process of feasibility studies and approvals. In May 2002 an environmental approval for operation and processing was granted. In 2005 an announcement about the revamped mine followed and in February 2006 construction of the new mine commenced. Four years later in February 2010, the mine started operation. The project has an estimated lifespan of 25 years.

As of July 2011, the gold mine's total workforce numbers 1457 people of whom 943 or 65% are directly employed by the company and 485 by contractors (see Table 14). Only 199 people from the entire workforce, including contractors are people residing within a 50km radius of the mine, of whom 157 or 10% of the entire workforce reside in the town of Boddington (see Table 15).

Table 14. Gold mine workforce structure 2009 - 2011

Workforce	2009	2010	Q2,2011	July, 2011
Men	497	655	795	797
Women	98	115	148	150
Residential	119	170	187	199
Indigenous	33	40	45	55
Apprentices	11	12	16	17
Trainees	10	5	7	27
Contractors	349	392	485	510
Total	944	1162	1428	1457

Table 15. Gold mine local workforce distribution

Suburb/Town	2010	2011
Boddington	132	157
Dwellingup	22	22
Quindanning	1	1
Wandering	11	18
Williams	4	1
Total 50 km radius	170	199

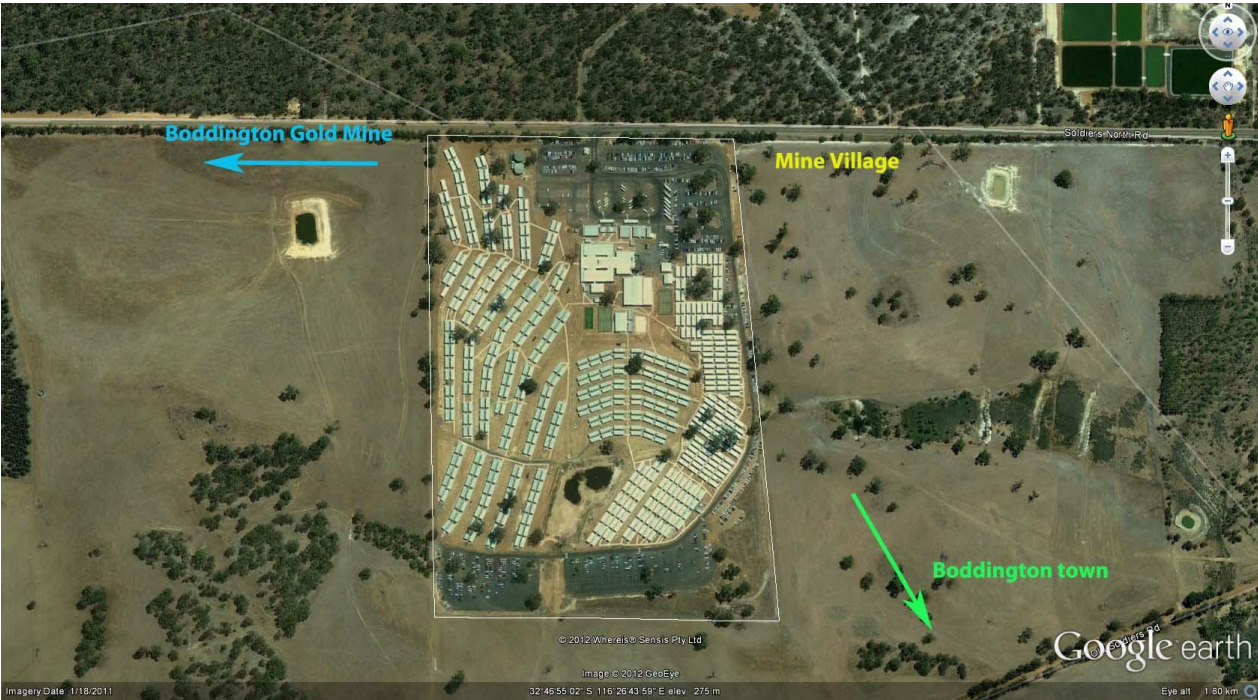
Source: Company information

Some of the local labour force of both gold and bauxite mines commutes on a daily basis within a 50 km radius, which includes the surrounding settlements of Dwellingup, Quindanning, Wandering and Williams. However, the majority of the gold mine employees

reside in the mining camp located just a couple of kilometres away from the town (see Figure 9) and practice DIDO (Drive-in Drive-out) and FIFO (Fly-in Fly-out) on a company roster.

The mining camp covers an area of approximately 292,400 m² and has a capacity to accommodate up to 2400 employees (see Figure 9). It has been intensively used in the early development stage of the gold mine and also provided accommodation for the bauxite mine expansion construction phase workforce. Currently it accommodates rostered workers who do not reside in Boddington. It is planned this to continue for the lifespan of the mine. The mining camp is fully serviced with private accommodation for every employee. There is a canteen providing three daily meals for employees and all other facilities necessary for the workforce to maintain a normal life away from home such as gym, laundry facilities located throughout the village, dining room, entertainment rooms, hairdressing services available once a week.

Figure 9. Mining camp – Google earth view



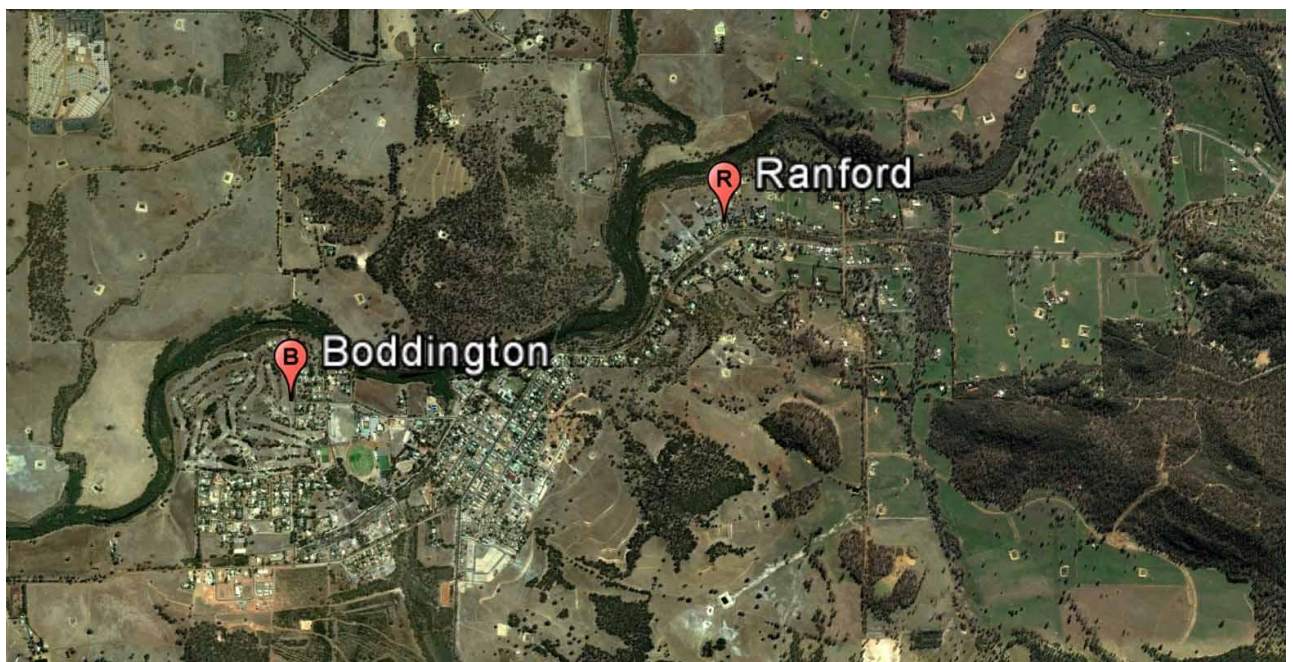
Source: Google earth

5.4. Community profile of Boddington

The profile of the case study area is outlined. As the mines are located in the Shire of Boddington, and are immediately adjacent to the township of Boddington and Ranford (see Figure 10), data related to both shire and township level are taken into consideration. The

primarily source of data are the Australian Bureau of Statistics (ABS) Community profiles, as well as the 2006 and 2011 Population and Housing Census data. The ABS community profile data is organised on the basis of Local Government Areas (LGAs), which are the lowest tier of governance administered by the states and territories of Australia. Local governments are the bodies that are most closely related to the daily lives of citizens, they are also been referred to as elected Councils, Shires or Local Councils (WALGA, 2012). In Australia, township is a small community in a rural area, which is part of a larger administrative area i.e. LGA.

Figure 10. Boddington-Ranford township – Google earth view



Source: Google earth

Population changes as a result of mining

The Boddington shire experienced periods of population raise and decline throughout the years. After the decline of the timber industry in the 1960s, the shire population started to decrease losing over 40% of its residents for a period of only five years (Boddington-Ranford Townsite Strategy, 2010). Over the next twenty years, between the mid-1960s till early 1980s, the population size of the shire plateaued around 700 people. The population started to pick up moderately after the gold deposit was discovered and mining activities started in 1987. For a period of ten years between 1986 and 1996, when the gold mine was brought into full operation, a significant population growth of more than 60% was observed (Boddington-Ranford Townsite Strategy, 2010). However, in the late 1980s and during the

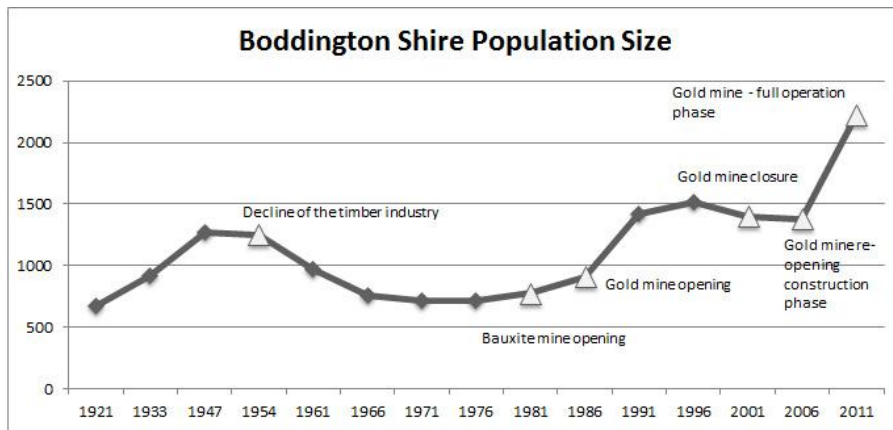
1990s, wool prices dropped significantly and returns to broadacre cropping were variable. This made a lot of young people move away from Boddington and returns to take over the family farm were rare (Tonts, 2010; McKenzie, 2009). Over the next five years between 1996 and 2001, the shire in fact recorded a decrease in population of 7.6%, dropping from 1516 to 1407. Throughout the years, community minded people were constantly looking for new opportunities to bring people back to town, but their attempts have not been very successful until the gold mine's recommencement was announced (McKenzie, 2009) (see Figure 11).

The Australian Bureau of Statistics (ABS, 2011) estimated population data show that after the closure of the gold mine in 2001 the shire did not experience a serious population loss. On the contrary, the population remained quite stable. However, there are indications of emerging changes in the population structure. Between 2001 and 2006 the median age of the shire population increased from 33 to 39 years, and the share of people aged 45 and over increased with more than 10%. Data reveals that people within the 25 – 45 age bracket seem to be the ones who moved out of the shire after the closure of the gold mine. Slowly, the township started to attract retirees who were looking for a quiet place to settle in. Between 2001 and 2006 the male/female ratio in both the town and the shire remained unchanged. The share of male population was larger outside the town, while the share of both men and women was equal within the township. This is due to the fact that people employed in agriculture reside mainly outside the township and agricultural areas are characterised with predominantly male population.

A huge change in population terms, happened in 2010, when the gold mine was brought into a production phase, this included a significant increase in the population size of both the township and the shire as well as dramatic change in the community structure.

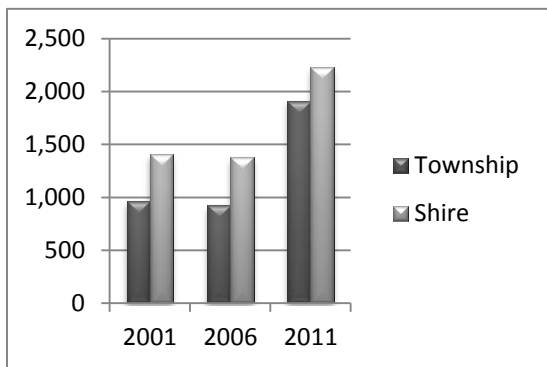
The population size of the Boddington township, more than doubled between 2006 and 2011 (see Figure 12), jumping from 927 in 2006 to 1908 in 2011 with the main influx of people happening in 2011. The shire as a whole added another 60% to its inhabitants (ABS 2012).

Figure 11 Boddington shire population – 1921 - 2011



Source: ABS, 2011

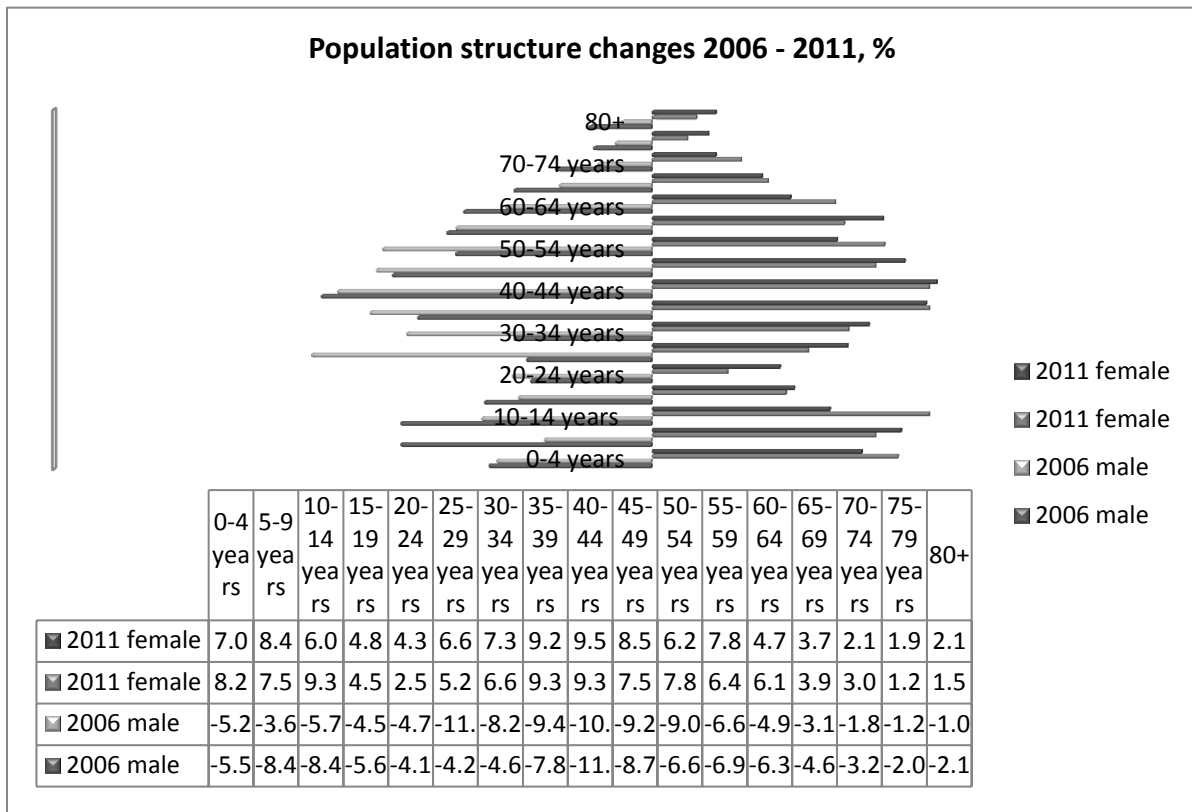
Figure 12. Boddington town/shire population changes – 2001 - 2011



Source: ABS, 2011

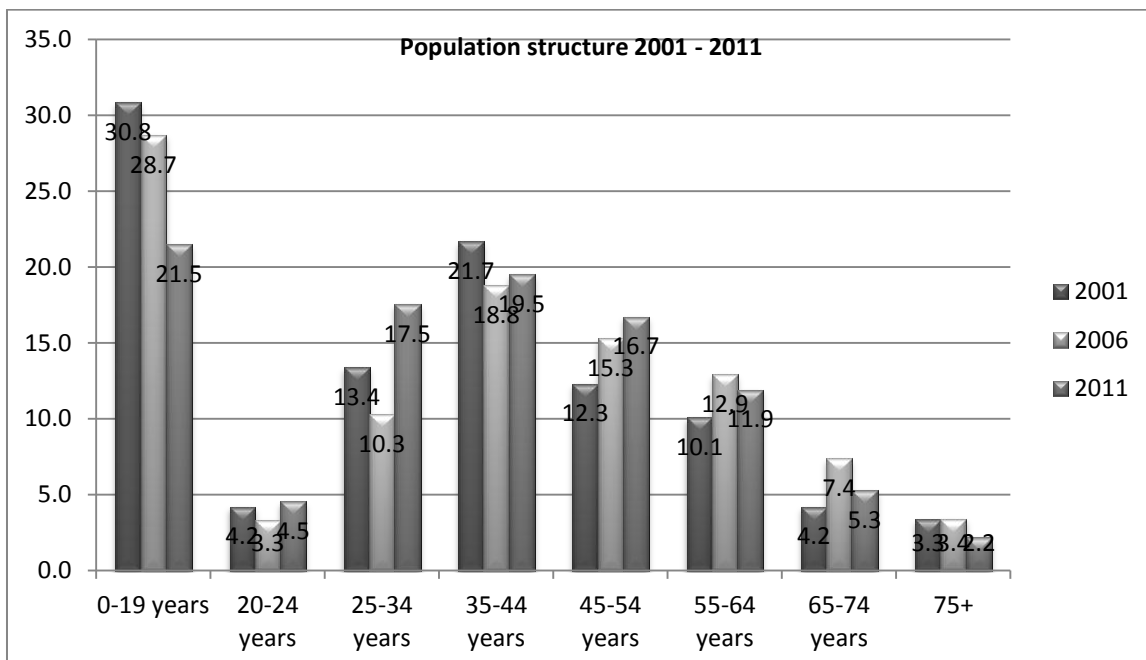
The shire of Boddington is characterised by a relatively young population in the last 10 years – with around 35-37% aged less than 30 and two-thirds below 50 years of age. Up until 2010, men in the shire slightly outnumbered women, while within the township the share of men and women was equal. The situation changed dramatically in 2011. The number of male residents almost doubled, and now comprises 64% of the township population and 62% of the shire respectively. The biggest influx is of young single men aged 25-34. On the other hand, the share of married couples and people up to 19 years of age slightly decreased in favour of single men (see Figures 13, 14, 15).

Figure 13. Boddington population structure (gender), 2006 – 2011



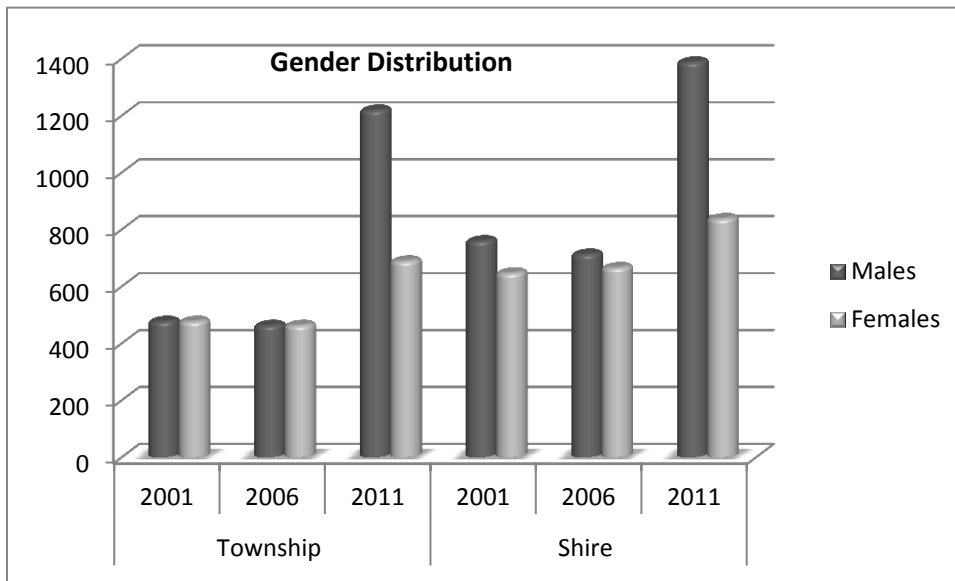
Source: ABS, 2011

Figure 14. Boddington population structure (general), 2006 – 2011



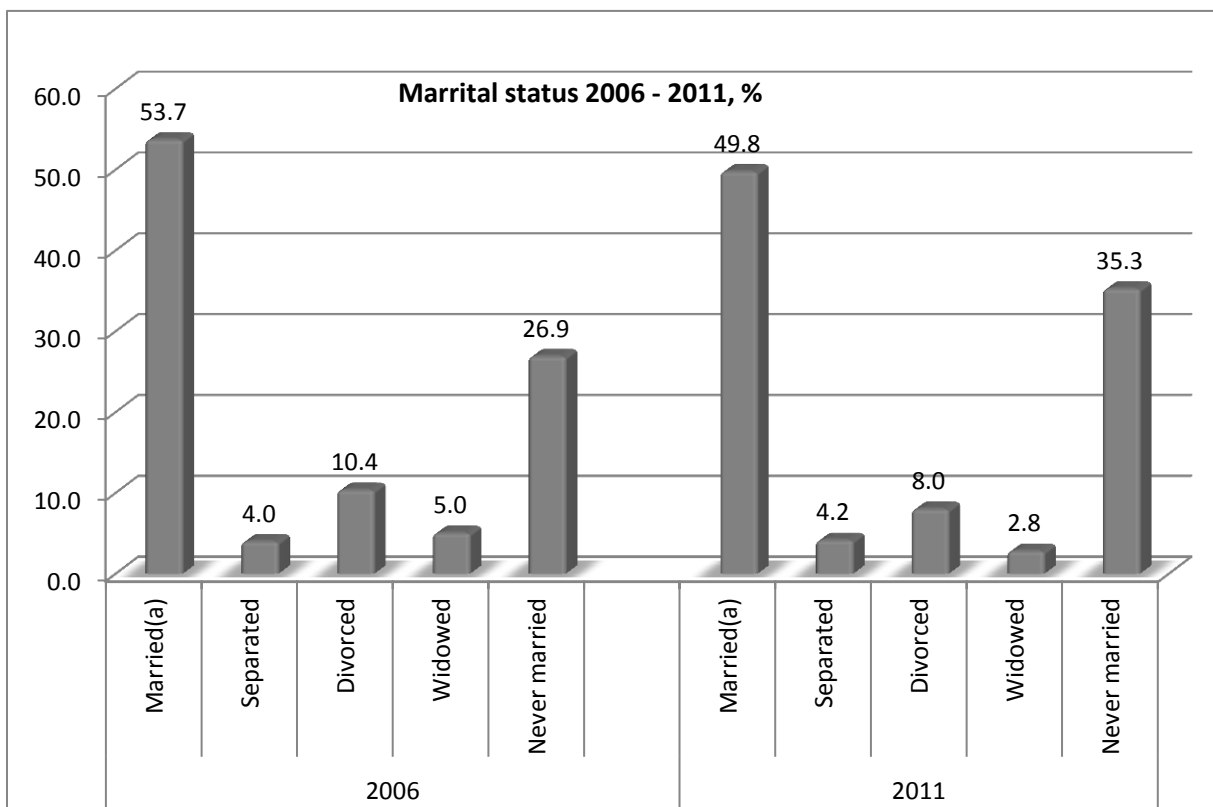
Source: ABS, 2011

Figure 15. Boddington gender distribution, 2001 -2011



Source: ABS, 2011

Figure 16. Boddington population marital status, 2006 – 2011

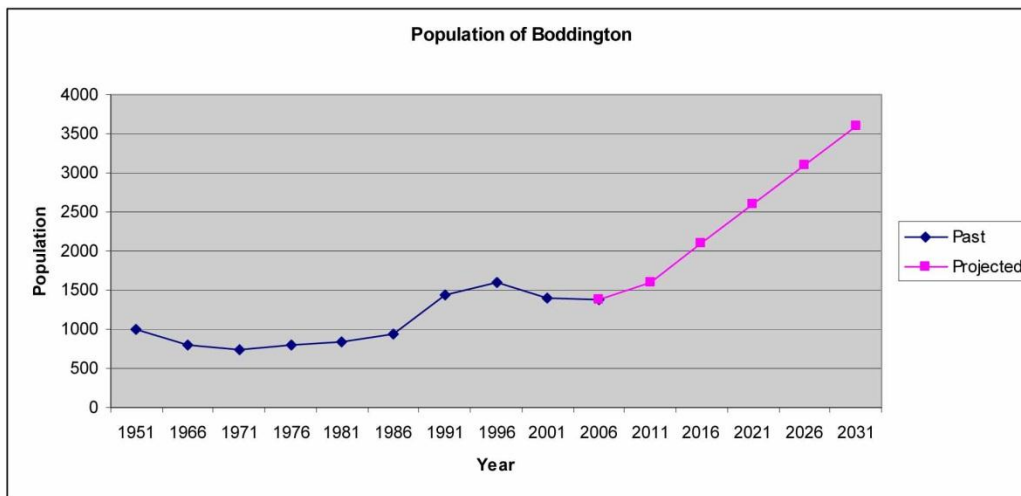


Source: ABS, 2011

Taking into account that the gold mine is expected to become the biggest open-cut mine in the southern hemisphere, projections are made for the population of the town to double over

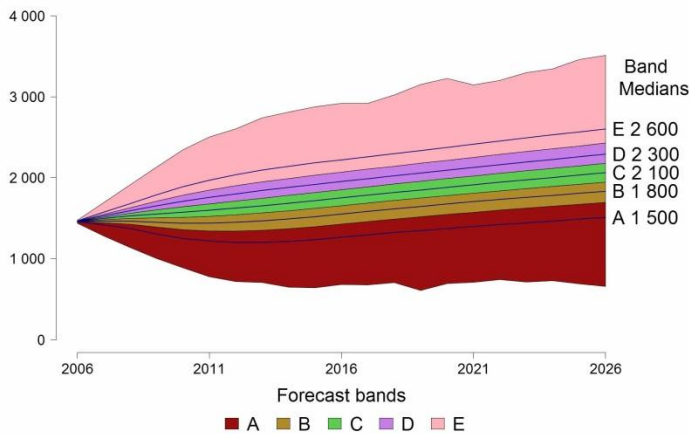
the next ten years. According to the Boddington-Ranford town-site strategy (2010), it is projected the shire population to increase to 2100 within the next five years and double by 2031 (see Figure 17). The Western Australian Planning Commission (WAPC 2012) developed three scenarios of population growth for Boddington, based on lowest (A), highest (E) and median (C, comparable with previous WA Tomorrow (WAPC, 2005 publications) projections. If the median trend is taken for the shire of Boddington which seems more realistic, its population is expected to reach 2100 in 2026 (see Figure 18).

Figure 17. Boddington population growth, 1951 - 2031



Source: Shire of Boddington, Boddington-Ranford Town-site Strategy, 2010

Figure 18. Forecast for Boddington shire population growth



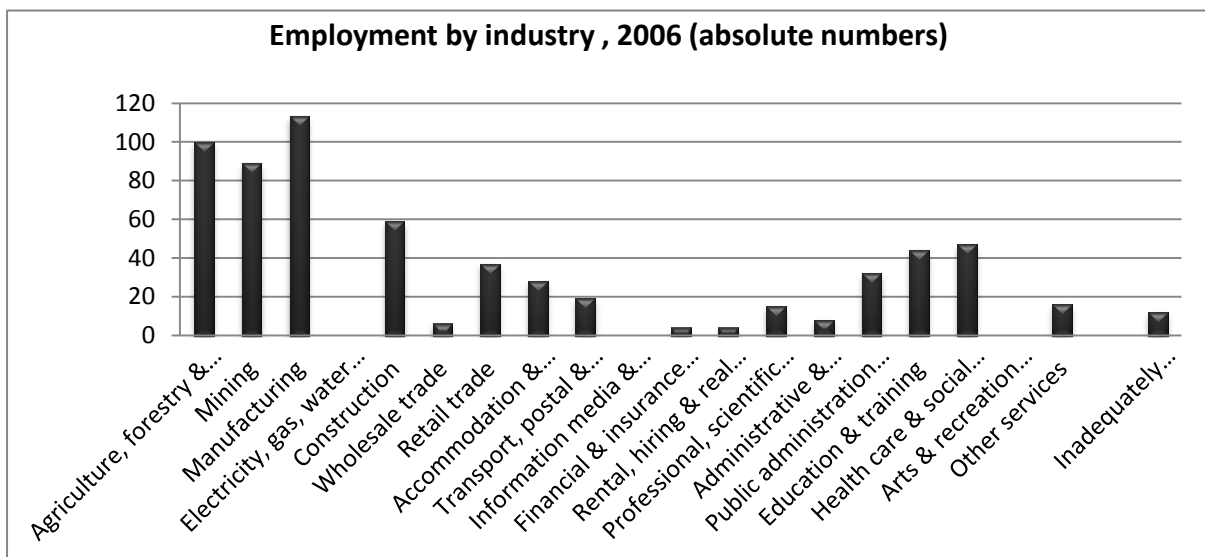
Source: Forecast of total shire population, WAPC, WA Tomorrow 2012

However, as the latest data from the 2011 ABS census reveals, the expected increase in population is happening much faster than what had been projected, and is already above the medium projection. The impacts of population changes are further explored in Chapter 6.

Employment patterns

Manufacturing, agriculture and mining are the primary industries providing employment in the shire (ABS, 2006). In 2006 just before the bauxite mine expansion project was announced and the construction phase of the gold mine revamping started, manufacturing (18%), agriculture (16%) and mining (14%) were the main employing industries in the shire. However, the situation in the township of Boddington–Ranford, was different with manufacturing and mining being the key sectors of employment, hiring respectively 26% and 21% of the local workforce. Only 6% of the people residing in the urban centre were engaged in agriculture, which clearly demonstrates that the majority of people involved in farming live outside the township. The percentage of employment within these three sectors of the study area is quite high, compared to the averages for WA – 3.3% for agriculture and respectively 4.2% and 9.4% for mining and manufacturing. At the time this analysis is being completed, no statistical data is available for more recent periods. My personal observations and communications with the local council and people show that the main trends remain but mining now accounts for even bigger share of employment (see Figure 19).

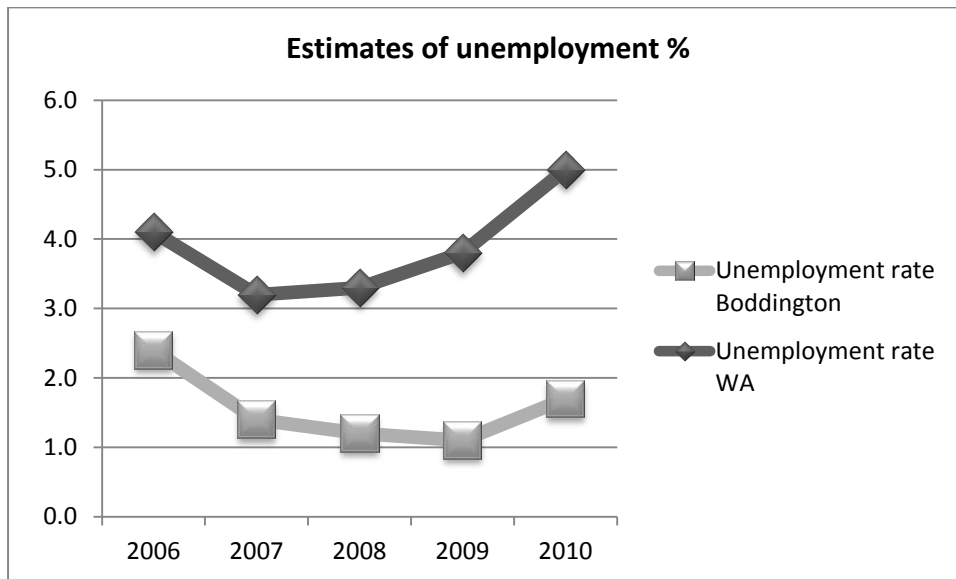
Figure 19. Employment by industry, 2006 (absolute numbers)



Source: ABS, 2011

The unemployment rates in Boddington are twice lower than the trend for WA. Figure 20 below demonstrates the drop in unemployment rates since the Boddington gold mine commenced construction in 2006.

Figure 20. Unemployment level estimates, 2006 – 2010



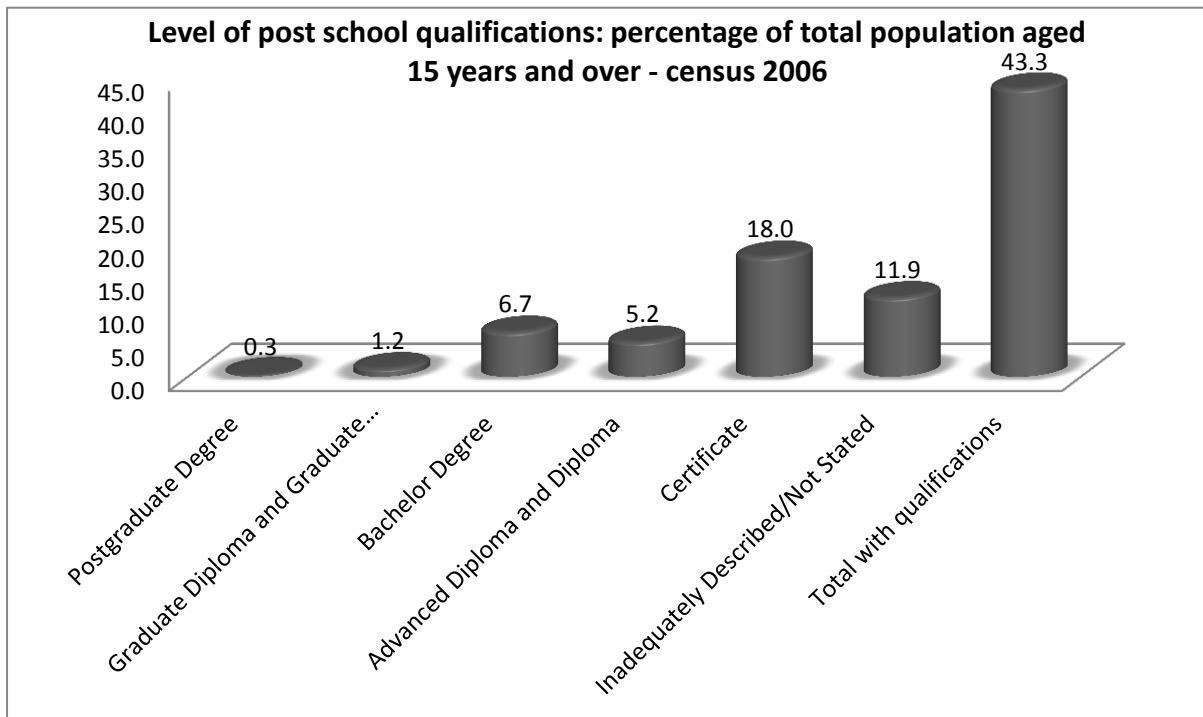
Source: ABS, 2011

The discussion so far demonstrates that the nature of the shire and the township respectively is changing. The community is starting to resemble the characteristics of the typical mining communities in WA. It is evident that there has been a transformation from an agricultural community to a community where mining is taking over as a major component, influencing drastic changes within the demographic structure and the employment patterns. As schooling appears to be one of the issues mining companies face in regards to attracting and retaining more permanent workforce residing in the area, educational patterns and schooling within the shire are outlined in the next section.

Education

Mining towns in WA are characterised with generally lower level of education (Tonts et al., 2011). An overview of the 2006 Census data reveals that Boddington residents exhibit the educational trends for WA mining communities, with only 29% completing year 12 or equivalent, compared to 42% for WA. The 2011 Census data demonstrates that after the recommencement of the gold mine, the share of people with year 12 or equivalent increased to 33% (see Figure 21). However, in 2006 the share of people with post school qualifications was relatively high 43%, which equal to the WA average. Data for 2011 was not yet available at the time this analysis was completed; therefore no further comparison is possible.

Figure 21. Level of post-school qualifications



Source: ABS, 2011

The availability of appropriate schooling has always been a problem for mining towns in Western Australia. The majority of the regional local schools do not offer university entry exams and this is a turning point for parents deciding whether to stay or leave a particular regional area (Forsey, 2011). Forsey (2011) argues that a significant number of families with students to enter high school choose to leave and move to a place offering better educational services and schools having better reputation.

Currently, there is one high school in the Boddington area offering year 11 and 12 vocational education while university entry exams are not offered locally. There are approximately 320 students enrolled from Kindergarten to Year 12, and the local school has the capacity to accommodate an additional 150-200 students. There are also Technical and Further Education (TAFE) courses run in the town, provided by the WA Department of Training and Workforce Development. Currently TAFE offers courses in horticulture, computer based skills, home economics and arts. The proximity of Boddington to larger service hubs such as Mandurah, Bunbury, Northam and Perth, does not justify the opening of full TAFE facility in the town.

Housing

One of the most corporeal impacts mining has on local communities is related to housing availability and affordability (Freudenburg, 1986; Pini et al., 2007; Rolfe et al., 2007; MacKenzie et al., 2008; Lockie, Franettovich et al., 2009; McKenzie, 2009; Petkova-Timmer et al., 2009; McKenzie, 2011; Franks et al., 2011; Tonts, Plummer et al., 2011). The large influx of people contributes to higher demands for housing. Limited availability of residential properties drives prices up and forces FIFO and DIDO practices. Higher rents also influence long-term tenants to move out of the community.

Mining appears to have a significant impact on housing availability and affordability within the shire of Boddington as well. Since the gold mine revamping was announced, a serious increase within the housing market in the area was observed.

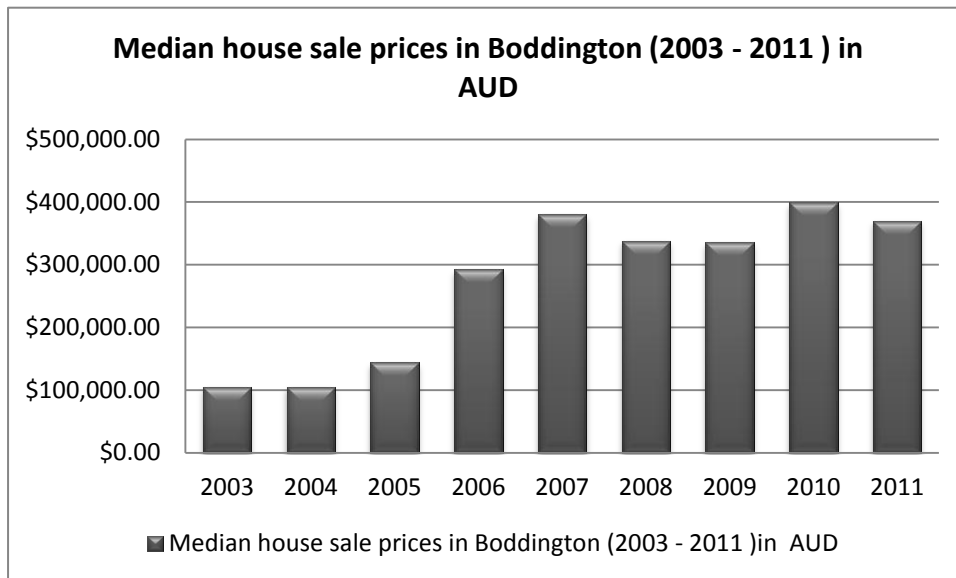
Data derived from the Real Estate Institute of WA (REIWA) reveals that the real estate prices have doubled over 2005 and kept increasing over 2006 levels. A decrease of approximately 11% was observed in 2009, however, prices went up again in 2010 when the average sale price reached its maximum of \$400 000. In 2011 a drop of 7% was observed bringing the median house sale price to \$380 000 (REIWA, 2011). Meanwhile between 2006 and 2011, 124 new private dwellings were developed in the shire (ABS, 2012).

Rental prices have also registered serious increase, the ABS Census 2006 data shows that in 2006 the median rental price in Boddington was \$120, while in 2011 it was \$224 per week. A web-search demonstrates that the average market rental price in April 2012 in Boddington is \$420 per week⁸ (see Figure 22).

Compared to the Perth regional WA house markets, Boddington fits within the general trend. It appears that 2006 is the turning point in the house market in WA, with real estate prices now almost doubling that level.

⁸ Calculations are based on the available rental properties, using data from realestate.com.au and reiwa.com.au

Figure 22. Boddington median house sale prices



Source: Realestate.com.au

5.5. Conclusion

This chapter undertook an overview of mining in Western Australia and outlined a typology of the WA mining settlements. Further, it proceeded with considering the specifics of the case study relevant to the long-term development of Boddington. Mining was shown to be of key importance in shaping the social landscape of Western Australia. However, the particular case study of Boddington is quite unusual for the Western Australian mining reality because of its location, history and particular characteristics.

Being identified as a primarily agricultural community for decades, there has always been an industry influencing the development of the area, first timber and later on mining. The implications of the emergence and decline of an industry in the area predetermine its development paths and impact on its population size, demographic structure and specifics. Although Boddington has already been associated with mining operations, the transformations this community is experiencing now are incomparable with previous changes.

A major disruption in the local environment's status quo is the large amount of people relocating into the town within a very short period of time. Increasing population, changing social structure and gender imbalance were identified as some of the key social change processes which impact on the social landscape and are discussed in the following chapter.

CHAPTER SIX – SOCIAL IMPACTS OF MINING

6. 1. Introduction

Earlier in Chapter 2, some theoretical concepts about social impacts and social change processes were discussed and different types of impacts were outlined. Chapter 5 provided an overview of the Western Australian mining context and the specifics of the case study area. In this chapter, theories about social impacts are linked to this particular case study. The discussion reflects on community's understandings about and experience with the social impacts of mining in the studied area and analyses findings from both primarily and secondary sources. This chapter answers the first research question - what are the social impacts and transformations triggered by mining activities at a local community level.

The chapter begins with an outline of the data collection process and data analysis methods (Section 6.2). Section 6.3 presents the findings related to community's views and perceptions of the social impacts of mining within Boddington, which covers both positive and negative aspects raised by the community. Section 6.4 analyses community's social cohesion and levels of social capital at the time when a large scale mine commences operation. The existing dependence on the presence of large mining activities as well as possible scenarios for the future without mining are explored respectively in Sections 6.5 and 6.6.

6. 2. Data collection and analysis

The data related to social impacts of mining within the case study area was gathered through various research techniques – secondary data analysis, community survey, interviews and discussions with local informants and company representatives as well as observations within Boddington.

Analysis of secondary data

The analysis of secondary data was used to frame the initial context about the community related issues triggered by the presence of mining. To get a breath of understandings about the situation, the following documents were studied:

- Companies' SIAs;
- Needs Analysis for the Shires Impacted by Re-Opening of the Boddington Gold Mine, 2008

- Shire of Boddington Strategic Plan, 2009
- Plan for the future 2009 -2013
- Boddington-Ranford Townsite Strategy, 2010
- Shire snippets for the period 2010 - 2011
- Minutes from the Local Council meetings for the period
- Boddington SuperTown Interim Growth Plan, 2012
- ABS statistics (census data 2001 – 2011; community profiles)

The initial overview of the fore-mentioned documents was used to outline the focus and the scope of the community survey and interviews. A special attention was paid to the existing impact assessments in order to outline the key areas of social impact that have already been investigated. The overviewed documents cover essential and standardised impacts, nevertheless the approach taken towards the social impacts is very different. One of the SIAs provides a baseline snapshot of the community supported with discussion of the issues that community members identify at a local level, while the other emphasises industry contribution and thoroughly reflects community perceptions related to mining. The impact assessment carried out by the local government focuses exclusively on housing availability and infrastructure. Table 16 presents the categories of impacts covered within the examined documents.

Table 16. Social impact categories covered in existing impact assessment documents

Social impact categories covered in existing impact assessment documents
Accommodation and housing
Community services and facilities
Contribution to local economy
Employment
Infrastructure and services, including education and training
Land tenure
Population
Traffic
Health and safety

In framing the community questionnaire and the interview guide, it was decided that instead of repeating already existing studies, it is more important to focus mainly on impacts about

which there was no or limited information available and explore the relationship between cause-effect factors.

Community survey

The community survey was carried out in the period November-December, 2010 (see Section 4.5 for more details about the data collection process). There were 56 valid questionnaires out of 72 completed as only responses from people residing in the Shire of Boddington have been considered for the analysis. Prior to completing the questionnaire, the respondents were provided with an information sheet (see Appendix 2) outlining the purpose of the survey and their involvement. Consent for voluntary participation in the study was also sought (see Appendix 1 community survey questionnaire).

The survey instrument, designed as a semi-structured questionnaire (see Appendix 1), includes 16 questions and a demographic section comprising of another 11 questions gathering information about basic demographics:

- gender
- education and marital status
- occupation and industry
- household size
- annual income and
- property ownership

The survey begins with a screening question identifying the respondent's place of residence. The next question asked the respondents to give their opinion how global processes and globalisation on one hand and mining on the other influence six areas of their life related to:

- local culture
- family life
- employment in the area
- local community values
- economic activities in the area, and
- sustainable development in the area

This influence is measured using the Likert-type scale from 1-5, with '1' being 'Completely positively' and '5' – 'Completely negatively'. Question 3 aims at gathering information about changes within the local social environment impacting on the level of social cohesion and respectively social capital. Using again a Likert-type scale, respondents were asked to share their level of agreement or disagreement with a statement related to community members caring about the common well-being. Further, question 4 asked people to point out whether community members have become more socially organised as a result of the presence of mining, using a nominal yes/no scale. Question 5 was designed to identify community members' intentions to rely on mining and government respectively about eight areas of activities, i.e:

- improving the provision and access to social services and facilities
- Improvement of infrastructure
- supporting community events and activities
- contributing to community development
- taking care of cultural and natural heritage
- provision of jobs in the area
- contributing to the economic diversification in the region and
- initiating and supporting sustainability of the region

The respondents had to identify their degree of reliance on a scale from 1 to 5, where '1' indicates 'Not at all' and '5' 'Very much', for each area of activity related to both mining and government. Questions 6 and 7, gathered information about people's perceptions about positive and negative impacts of mining, and the contribution of mining to the local community and the region as a whole. Both questions were left open-ended. The respondents had the option to report on maximum of three positive and three negative impacts resulting from mining. Question 8 asked whether there were any harms or negative impacts that people have experienced personally and required a specific answer. This question proved to be a failure as the response rate was only 20%, therefore it is not included in the analysis. The next two questions provided a hypothetical situation and asked about potential actions in case mining in the area stops for an undefined period of time. The respondents were given five options and were allowed to indicate as many answers as relevant. Questions 11 – 14 explored the entrepreneurial spirit within the community and the last two questions (15 and 16) were related to social capital and level of trust.

At the end of the questionnaire the respondents were given the opportunity to share anything that is related to the social impacts of mining in the area and was not covered in the questionnaire.

The majority of the respondents didn't take the chance to share their opinion and elaborate, however some 20% provided valuable information related to community dynamics and impacts associated with the presence of mining.

The survey results are interpreted quantitatively and qualitatively. Initially, the data was inputted and analysed with SPSS (Statistical Package for Social Sciences). The answers provided in the open-ended questions (Q6, 7, 10, 12) were registered, coded accordingly and grouped into major categories, and then processed statistically with the software.

The qualitative interpretation of the data was employed because of two main reasons. Firstly, the responses were quite diverse and the sample size was not big enough to allow any reasonable statistical interpretations. Secondly, realising there was very valuable information in the responses and the comments provided by the interviewees and complying with the main purpose of the study –i.e. exploring social impacts within the studied area, and to ensure breadth of the analysis, it was of a critical importance to capture the various themes reported by residents regardless of any statistical significance.

Community survey sample highlights

The sample size of the community survey comprises 56 valid interviews with people residing in Boddington, of whom 57% were males and 43% females. The majority of the respondents fall within the 26 – 45 age group, representing almost half of the sample size. Just over 60% were people who had completed higher than year 12 education. Married people and de-facto dominated, exceeding 62% of the sample size. Almost half of those interviewed were professionals and trades persons (24% within each group). However, people employed in mining dominated the sample, comprising 44% of all participants, followed by agriculture and education (14% for each group). Every fourth participant owns a residential property in Boddington and respectively every fifth has agricultural land within the shire. A summary of the survey sample characteristics is presented in Table 17.

Table 17. Community survey sample characteristics

Community survey sample characteristics		
Sex		
N=56		Valid Percent
Valid	Male	57.1
	Female	42.9
	Total	100.0
Age (Binned)		
N=56		Valid Percent
Valid	<= 25	12.5
	26 – 35	25
	36 – 45	23.2
	46 – 55	16.1
	56 – 65	14.3
	66+	8.9
	Total	100
Education		
N=56		Valid Percent
Valid	Primary	3.6
	Secondary	30.9
	TAFE	36.4
	Undergraduate	7.3
	Postgraduate	21.8
	Total	100
Marital status		
N=56		Valid Percent
Valid	Single(never married)	25
	Married/Partner	62.5
	Divorced/Separated	12.5
	Total	100
Occupation		
N=54		Valid Percent
Valid	Managers and administrators	16.7
	Professionals	24.1
	Associate professionals	1.9
	Trades persons and related workers	24.1
	Intermediate clerical, sales and service	5.6
	Workers	9.3
	Elementary clerical, sales and service workers	1.9
	Labourers and related workers	1.9
	Pensioners	7.4
	Housewives/maternity leave	3.7
	Unemployed	1.9
	Other not working	1.9
	Total	100
Industry		
N=50		Valid Percent
Valid	Agriculture, forestry and fishing	14
	Mining	44
	Manufacturing	6
	Electricity, gas and water supply	6
	Construction	2
	Accommodation, cafes and restaurants	4
	Communication services	2
	Government administration and defense	4
	Education	14
	Health and community services	4
	Total	100

Interviews, discussions and attendance of community meetings

This part of the research involved a number of formal and informal meetings and discussions with local community representatives, company representatives, local and regional government officials and attendance of local working group meetings related to the impacts of mining in the area.

A total of 14 interviews were conducted in the period February 2010 – August 2011 (for more details see Section 4.4). Participants' initial consent to take part in the research was sought prior to commencing the interviews. The interview process was guided by the initially prepared indicative questions, developed in conjunction with the research question. However the interviews followed a free-discussion format allowing the interviewees to share their views and experience without deviating too much outside the suggestive framework.

In addition, I was invited to attend a number of meetings, including: Peel Regional Development Working Group meetings (December 2009 and February 2010), Shire of Boddington Steering Committee meeting (February 2010), and community groups' regular meetings at the Boddington Resource Centre (May 2010).

The observation part of the study involved a number of trips to the case study site and informal talks and discussions with locals around the town. Study visits to the mine sites were also carried out in 2011.

Organisation of the analysis

The analysis below flows by themes, organised initially around the structure of the questionnaire, reflecting on:

- Community's views about social impacts of mining, both positive and negative
- Community's social cohesion and levels of social capital
- Emergence of a 'dependency' culture
- Hypothetical scenarios in a situation when mining stops operation.

Each theme starts with the findings from the community survey and then is further supported with information identified during the interviews with key community informants. Where relevant, some themes are backed up with findings from secondary data analysis.

The analysis provides a snapshot of the state of the community at a time when a large-scale mine commences operation. This overview does not plead to provide an exhaustive coverage of all social impacts appearing within the community. It explores community members' views and experiences with the mining industry and reflects on what their change coping mechanism are, if any at all. The social impacts reflected upon in the study are related to the local community as a whole. Special attention is paid to impacts that were not covered within the existing case study related social impact assessments, but appear to play a crucial role for the long-term sustainability of this settlement. The analysis also covers impacts related to population change processes as well as economic and employment implications from the presence of mining, as they are closely related to changes appearing within the community structure and respectively influencing the long-term development at a community level.

There are a few stipulations that have to be kept in mind when reading the analysis and interpretations of the social impacts within this research context. First, this is neither remote nor purposefully built community. Established around farming, it is located close to regional centres and the state capital city. Second, while agriculture has marked the character of the community, people have been exposed to industry rise and decline pretty much throughout Boddington's entire history (first timber industry and later mining). Third, the community has been accustomed to the presence of mining over the last 30 years, though this is the first time it faces the challenges of a large-scale mining operation. The transformations the community is going through now are qualitatively different than what it had been exposed to in the past and these will inevitably change its nature and social characteristics.

6.3. Community's views and perceptions of the social impacts of mining

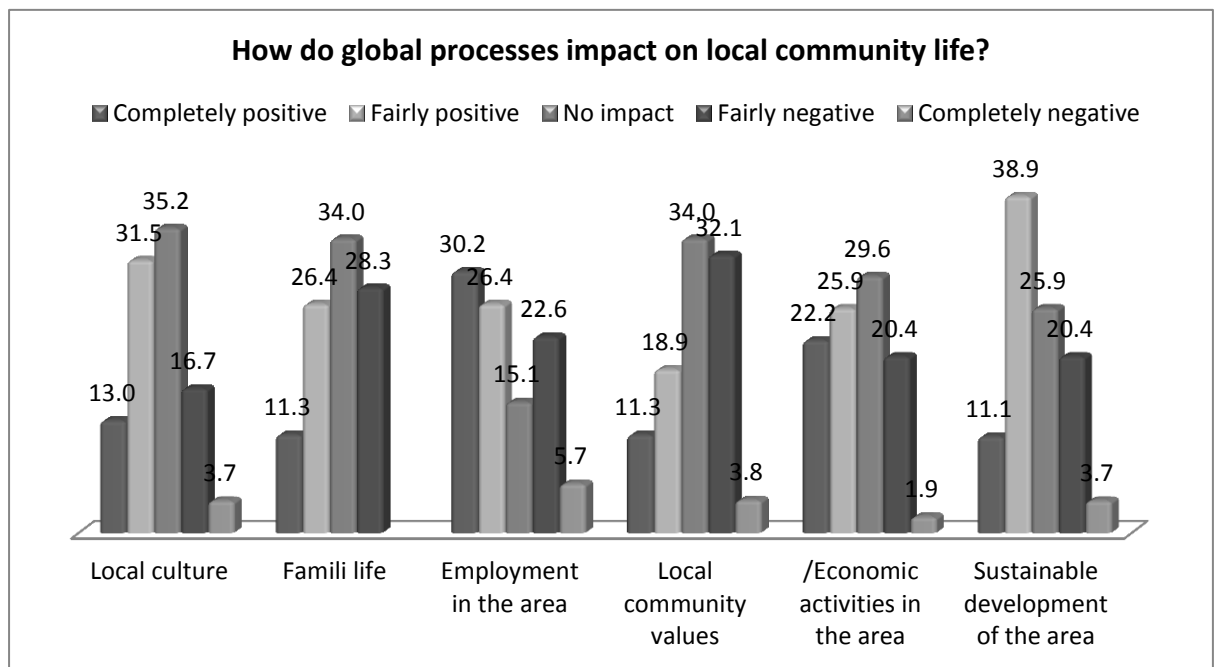
Impact of global forces and mining on community life

The first section of the questionnaire attempts to grasp community's views on how global processes and mining activities in the area are impacting different aspects of life in the community. The main goal for including such set of questions in the survey instrument was twofold. For one, this was to see whether community members acknowledge and envisage the influence mining has on the life and living environment in their community. For two, the influence of external for the community and local industry forces, such as the global financial crisis, media and the Internet, migration trends and foreign investments was also of interest.

As a whole, the respondents see mining in the area to have more positive impact on community life rather than the global process, which is understandable because mining is more ‘tangible’ for them than what is happening around the globe.

Overall, community members feel that global processes influence rather positively the economic aspects of life within the community (see Figure 23). The most positive impact is considered to be on the sustainable development in the area, over 50% of the respondents indicate the effect on this aspect is either positive or fairly positive. This is followed by employment and economic development, 53% and 63% respectively. However, for approximately a third of the respondents global processes have a negative or fairly negative impact on local community values and family life.

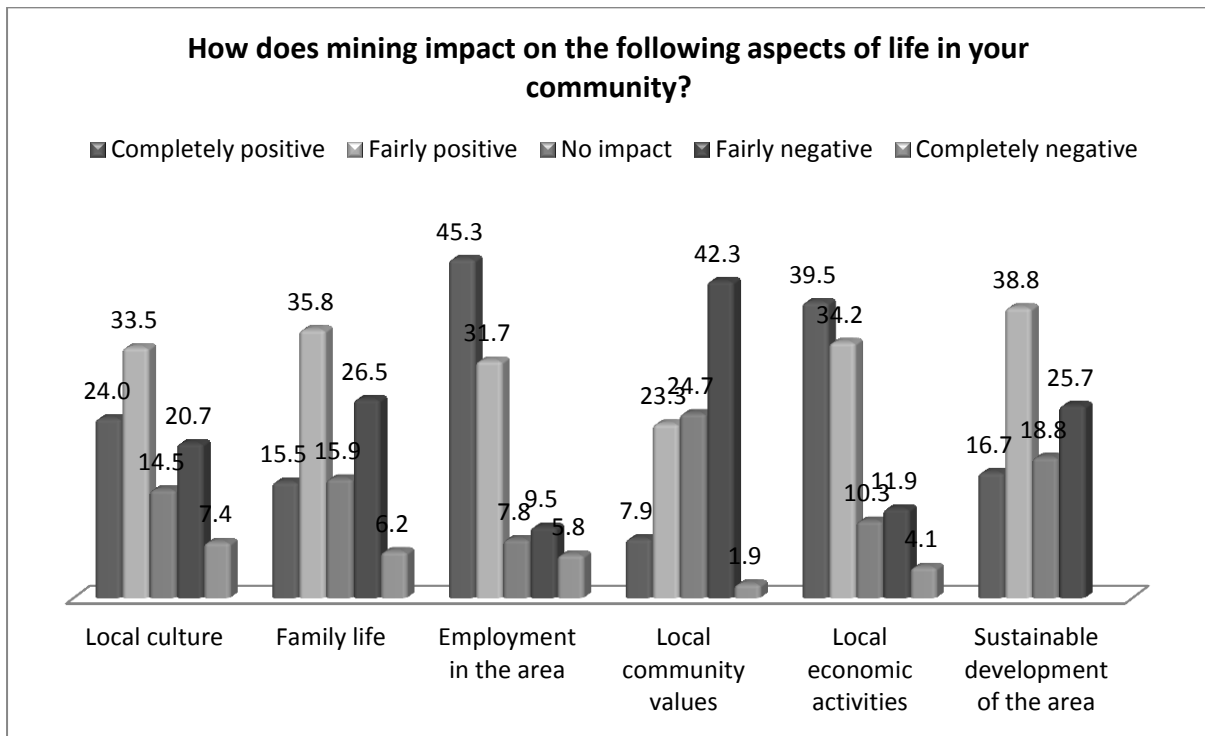
Figure 23. Global processes impact on local community life



Source: Boddington community survey, 2010

In total, 55% report that in general mining influences rather positively the social and economic aspects of life within the community. According to more than two thirds of the respondents mining contribution to employment in the area is unquestionably positive (see Figure 24).

Figure 24. Mining industry impact on local community life



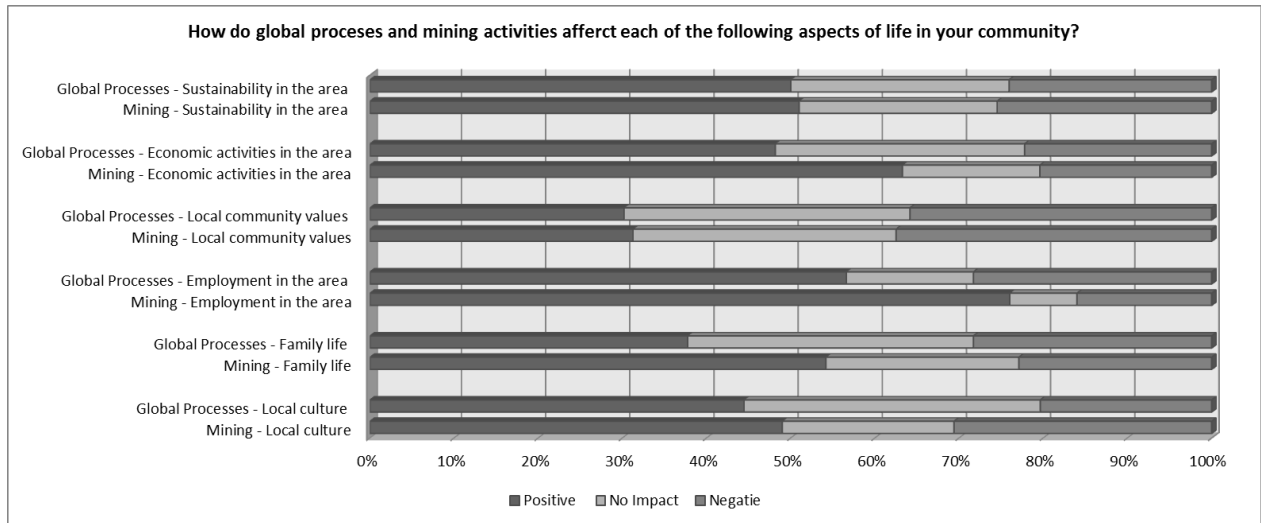
Source: Boddington community survey, 2010

More than half of the respondents state that mining is also favourable for the local economic activities and family life. However, a third report that mining affects local community values as well as local culture in a more negative way than global processes do. An interesting comment was made in relation to the abundant employment opportunities: “*some people put their income earning before family and leave their children unsupervised*” (Comments from a local resident, community survey November 6th 2010). It is considered that both parents being employed has consequences for children’s upbringing and leaves less valuable time spent at home, which consequently affects community values. The available childcare services are unprepared for the increased number of working mothers with young children. The small size of the community including the limited human resources, has encouraged mothers to come up with alternative forms of providing mutual support in childcare through the existing mothers’ group (see Section 6.2).

Another interesting observation is that the share of people who consider positive, negative or no impact respectively for mining and global processes for: sustainability in the area; local community values and economic activities in the area, is almost equal (see Figure 25). Apart from acknowledging the contribution of mining to the economic development of the area, it appears that people’s responses do not differ significantly within the two main categories of mining and global processes. One possible explanation for this could be that people in

general do not differentiate between the transformations caused by global and respectively local processes.

Figure 25. Global processes and mining industry influence on life in the community



Source: *Boddington community survey, 2010*

Views and perceptions about social impacts of mining

Below I proceed with a discussion on perceptions and views about both positive and negative impacts. In order to explore what people’s perceptions about social impacts of mining are, respondents were asked in the community survey to list out three positive and respectively three negative impacts of mining. In general, it was easier for people to identify positive impacts than negative. Also positive impacts were more frequently reported than negative. However, the range of negative impacts stated was a lot more diverse. Positive impacts were quite repetitive and fall within three main categories - economic development and material well-being; social well-being and community development; and quality of the living environment/livability. Some impacts as reported by the respondents fall within more than one category. The reported impacts, both positive and negative, were grouped in seven main categories as identified in Table 18.

Table 18. Categories of social impacts

Categories of social impacts	
Positive	Negative
Employment	Environment
Contribution to the local community	Family life and social inequalities
Business and regional growth	Traffic, noise and road accidents
Services and infrastructure	Housing
Well-being and family life	Newcomers
Population increase	Alcohol and drug abuse
Future prosperity and opportunities	Services and infrastructure

Positive impacts

The survey results show that generally, people came up with positive impacts whose effect they have already experienced, rather than expectations for the future. The majority of the reported positive impacts are mainly related to the opportunities that come as a result of the economic development of the area associated with the presence of mining (see Tables 19 and 20).

The positive impacts identified by the respondents can be classified in the following three major themes – employment, support and contribution to the local community economic development of the area. The first most recognized positive impact is the employment the industry is providing in the area, the second most commonly reported aspect is contribution to the local community.

Table 19. Positive impacts of mining (multiple responses grouped)

Positive impacts of mining (multiple responses grouped)			
	Responses		Percent of Cases
	N	Percent	
Employment	34	29.8%	77.3%
Contribution to the local community	28	24.6%	63.6%
Business and regional growth	24	21.1%	54.5%
Services and infrastructure	11	9.6%	25.0%
Well-being and family life	4	3.5%	9.1%
Population increase	3	2.6%	6.8%
Future prosperity and opportunities	10	8.8%	22.7%
Total	114	100.0%	259.1%

Table 20. Positive impacts of mining (response range)

Positive impacts of mining									
	First response			Second response			Third response		
	Frequen cy	Perce nt	Valid Perce nt	Frequen cy	Perce nt	Valid Perce nt	Frequen cy	Perce nt	Valid Perce nt
Employment	27	48.2	61.4	6	10.7	14.0	1	1.8	3.7
Contribution to the local community	3	5.4	6.8	16	28.6	37.2	9	16.1	33.3
Business and regional growth	10	17.9	22.7	8	14.3	18.6	6	10.7	22.2
Services and infrastructure	2	3.6	4.5	6	10.7	14.0	3	5.4	11.1
Well-being and family life				2	3.6	4.7	2	3.6	7.4
Population increase	1	1.8	2.3	1	1.8	2.3	1	1.8	3.7
Future prosperity and opportunities	1	1.8	2.3	4	7.1	9.3	5	8.9	18.5
Total	44	78.6	100.0	43	76.8	100.0	27	48.2	100.0
Missing system	12	21.4		13	23.2		29	51.8	
Total	56	100.0		56	100.0		56	100.0	

For 61% of the respondents the first positive impact they could think of was *employment* and the potential opportunities that the industry created in the area. Overall, 77% of all responses listed this as the most recognizable positive impact of mining. People do not only consider the availability of jobs and employment opportunities as positive, they also recognize and acknowledge the flexibility that the industry has towards employment, making it possible for different groups within the community to be included in the workforce (different opportunities the mining industry provides include *indigenous employment, opportunities for women* and *school hours employment*). The Boddington gold mine agreed to a schedule which has a target of employing 100 Aboriginal people by 2015, within five years after commencing operation in 2010 (South West Aboriginal Land and Sea Council, 2009). The company also offers flexible employment for women with shifts being allocated only within

school hours, which allows a balanced work/family life for those who have chosen employment with the gold mine.

The second most commonly acknowledged positive impact is the *support that mining provides to the local community by sponsoring community and sports groups and local events*. This was the first positive impact identified by 36% of the respondents and mentioned in total by 64%. The contribution of mining is mainly seen as financial and recognized as sponsorship to community events, local community and sport groups. Some respondents report that the financial support mining provides benefits community life and community development and also strengthens community involvement and participation. Contribution to economic growth in the region and positive impact on business development were acknowledged by more than half of the interviewees. Every fourth person considers investment and improvement in infrastructure as another important positive impact.

Along with the practical current outcomes however, there appeared also the theme about people's vision about the future. When asked to think about positive impacts from mining the majority of people focuses on the present and points out mainly evident, easily recognizable and practical aspects. However, along with this practical view 16% of the responses also indicate as a positive impact *the future prosperity*. According to these respondents, the presence of mining gives community members “**hopes for the future**” and “**something to look up to**”. They share that the availability of jobs implies “**future prosperity for employment for kids**” and gives them hopes that their children are going to remain in town in the future. The people who see promises for the future within the positive aspects of mining also believe that the increase of the community's population size will be a great opportunity and contributor for its prosperity and the further development of the township. There is a strong perception that the increase of population contributes and stimulates the development of the area in both community and business sense.

The flow of money into the community and the region as a whole, as well as other investments that are going to follow allow people to have future expectation of growth, opportunities, more prosperity and development. It could be speculated that apart from the obvious positive impacts that contribute to people's well-being and prosperity, mining influences positive thinking and raises hopes about future prosperity. However, dealing with such expectations appears to be one of the key issues mining companies face in regards to local communities.

Community's views about the contribution of mining

Two main ways in which the resource industries contribute to local community development are identified in the literature – temporal (limited in duration) and more permanent (that stays within the community for an indefinite period of time). Temporal contribution includes socio-economic advantages such as jobs, wages, profits, but also royalties and other forms of taxation, all these tied to a project lifespan and inherently linked to the volatility of the world commodity prices (Freudenburg & Gramling, 1998). The second one involves public-sector investments in infrastructure such as roads, public services, industrial parks, convention centres, schools etc.

The respondents were also given the opportunity to share their views about the contribution of mining to both local community and the region. These are the two questions with the lowest response rate, respectively 39 % and 33% of the participants. People either do not recognize the contribution made by mining or it was difficult for them to specifically identify it.

The main contribution of mining acknowledged by respondents to both the local community and the region coincide very much with the responses pointed out as positive impacts. People see again the contribution of mining in very practical terms, mainly related to the economic development of the area. The biggest contribution that mining is making to the local community is considered to be the employment provided by the industry. Support provided to community initiatives and local business, improvement of infrastructure as well as the growth of the region as a whole are the main areas people recognize as contribution. More aspects of mining contribution to local community will be discussed further in Chapter 7.

Negative impacts

The results from the community survey show that the reported negative impacts of mining were a lot more diverse than the identified positive impacts. The three main areas of negative impacts identified by the community are – environmental impacts, impacts on community and family life and population and housing (see Tables 21 and 22). Each theme is explored further in more detail.

Table 21. Negative impacts of mining (multiple responses grouped)

Negative impacts of mining (multiple responses grouped)			
	Responses		Percent of Cases
	N	Percent	
Population Increase	9	10.1%	20.5%
Environment	35	39.3%	79.5%
Traffic, noise and road accidents	12	13.5%	27.3%
Housing	10	11.2%	22.7%
Family life and social inequalities	15	16.9%	34.1%
Alcohol and drug abuse	7	7.9%	15.9%
Services and infrastructure	1	1.1%	2.3%
Total	89	100.0%	202.3%

Table 22. Negative impacts of mining (response range)

Negative impacts of mining									
	First response			Second response			Third response		
	Frequen cy	Perce nt	Valid Perce nt	Frequen cy	Perce nt	Valid Perce nt	Frequen cy	Perce nt	Valid Perce nt
Population Increase	3	5.4	7.9	3	5.4	9.4	3	5.4	15.8
Environment	20	35.7	52.6	10	17.9	31.3	5	8.9	26.3
Traffic, noise and road accidents	5	8.9	13.2	6	10.7	18.8	1	1.8	5.3
Housing	3	5.4	7.9	5	8.9	15.6	2	3.6	10.5
Family life and social inequalities	5	8.9	13.2	5	8.9	15.6	5	8.9	26.3
Alcohol and drug abuse	2	3.6	5.3	2	3.6	6.3	3	5.4	15.8
Services and infrastructure				1	1.8	3.1			
Total	38	67.9	100.0	32	57.1	100.0	19	33.9	100.0
Missing system	18	32.1		24	42.9		37	66.1	
Total	56	100.0		56	100.0		56	100.0	

The most commonly reported negative impact was the impact on the biophysical **environment**. People raised concerns that mining affects negatively on wildlife, it destroys vegetation and changes the overall state of the natural environment. This was stated as the first impact by 80% of the respondents. As environmental impacts are outside the focus of this research, despite their overall importance for sustainability, perceptions about impacts of mining on the environment are not further explored here.

Various *social impacts on community life* as well as on *family life* were the second most reported negative aspects. Long-hours shifts are believed to have a negative impact on mining employees' participation in local community life. Extended working hours make it harder to fit in community activities and commit to participation in sport teams and events.

“...Our town was going great before the mine, shift workers do not help local sporting bodies at all.” (Interview with local informant, Boddington, May 2010)

“Some people from the mines do get involved in community activities but 12 hours shifts make it difficult to commit on a regular basis.”(Interview with local informant, May 2012)

As participation in community life and the impacts mining has on it are closely related to community’s social capital, this particular impact will be further explored in Section 6.3.

Difference in wages between mining and the other industries in the area and influx of people with lower social and economic status are seen as sources creating social inequalities with the community. This theme also emerged later during the talks with locals. Differences in earnings apparently appear to be one of the factors influencing people to move out of the community and/or start commuting (see also Section 6.6).

Increase in crime, drug and alcohol abuse as well as noise, more traffic, and road accidents were also reported as current negative impacts. As these types of impacts were already identified within the existing SIAs, they have not been explored any further.

There are several other key themes which were implied in the community survey but were also widely reflected in the talks with the key local informants – the state of the local business environment, infrastructure and services, human resources, population and housing.

Local business environment

In general people acknowledge that mining contributes to the development of the local business environment. However, concerns were raised that as the town population increases, it still has the same facilities available and nothing changes significantly infrastructure wise, especially related to day to day services such as retail options. This appears to be one of the key negative consequences from the presence of a large mining operation. With the increase of population and the current capacity of the mining camp, the town retail outlets are expected to serve larger population, more than double the shire size from the previous year. Currently, retail opportunities are quite limited with only a few operational shops. Instead of shops popping up like mushrooms, a reduction in the number of local shops was observed. At the same time, lack of competition drives local prices up and in fact makes local shops uncompetitive.

The limited retail options and escalating prices of goods of everyday necessities, force people to look for other options. The lack of local outlets, brought into town a new way in daily goods shopping. Online food shopping services are offered locally by an external company. Deliveries to town are executed once a week at reasonably cheaper prices, which additionally undermines local retail. The proximity to the state capital Perth (130km to the city centre and 95 km to the closest Perth residential area shopping centre) and other regional centres (Bunbury and Mandurah) also gives options for people to drive and get the necessary goods that are not provided or are too expensive locally.

As a whole, it seems that the local community does not effectively capitalize on emerging opportunities evoked by the presence of mining.

“No offence to the mining industry in Boddington. It is the slow local population that is not taking full advantage of their presence. If they did, a good legacy could be left when the mine finally leaves.” (Comments from a local resident, community survey November 6th 2010).

In addition, the survey data reveals that the entrepreneurial spirit within community members is quite low. Close to 80% of the participants reported that they have never thought or considered carrying out any entrepreneurial activities and only less than 10% of them indicated that they have thought about starting a business. When asked what stops them from doing it, people pointed out three main reasons – lack of money, lack of critical mass of people and the desire to do it elsewhere. It is very important to note that only men express desire to start their own business.

Human resources

Shortage of available human resources (workforce) in town was identified as an important problem, affecting the normal functioning of the local economic environment. Business other than mining finds it difficult to compete with this industry and struggles to find and retain employees. Sectors, such as retail, hospitality and tourism, have to compete with higher salaries and benefit packages that mining provides, which makes the other jobs unattractive and incompatible. Moreover, the significant for the current town size and capacity non-resident population attracted by mining requires additional services and respectively more labour. Scarce human resources, hence, is pointed out as one of the reasons for the high turnover of local businesses.

“Small business owners find it hard to retained and hold employees” (Comments from a local resident, community survey November 6th 2010.)

...local businesses and local administration cannot compete with the working conditions and benefits the mine is providing. (Interview with local informant, Boddington February 2010)

“It is very hard for local businesses to find staff. There are vacancies at the local IGA⁹, which cannot be filled since months. Several local hospitality businesses that were recently opened because of the mine had to close, because of the lack of staff.” (Interview with local informant, Boddington February 2010)

“As a project manager for a contracting company in the mining industry, one of the biggest challenges is to maintain a level of good employees who are committed to the task. (Comments from a local resident, community survey November 6th 2010).

In conclusion, mining contributes to local employment; it provides opportunities for regional growth and creates opportunities for the development of local businesses. The presence of mining also brings people to the community and furthers population growth which is expected to respectively result in more vibrant and viable community. However, mining appropriates most available human resources, which to some extent impedes further community development and capitalisation on available opportunities. People who move into the community simply follow their jobs. They generate critical mass but do not contribute to the creation of available human resources that can fill in the existing gap.

Increase of population and attraction of long-term residents

As already emphasised in the discussion so far, population increase and the influx of people into the community appear to be the key source of various impacts by mining. However, this is met by two types of attitudes: on the one hand, people are unhappy with ‘newcomers’ moving in, and on the other, the existence of the mining village is seen by the locals as one of the main reasons impeding the relocation of long-term residents into the area.

The influx of people into the community is reported to change the existing social environment and to undermine the sense of community and social cohesion. Some community members accept the opinion that ‘**outsiders**’ impact negatively on local culture

⁹ Independent Grocery Store

and believe that they do not contribute to community life. Newcomers who are not part of the community and are moving there only to work in the mine are also described as “greedy” people who are “taking money away”, “getting jobs” and “do not care about town”. Separation between newcomers and locals and the emergence of social dilution due to incoming population have also been pointed out.

“There is a little bit of a distance between locals and newcomers, they do not socialize together and do not use the same networks.” (Interview with a local informant, Boddington, May 2010).

However, compared with what had been the case in the past when the gold mine initially started operation in 1989, a local informant shares that the tension between miners and locals is not as strong as it used to be in the past.

“In 1980’s when the gold mine started, there was a lot of “us” and “them” – farmers against miners.... Now there is a big change and there is no division between farmers and miners. Because of the development of mining and the timber industry decline (it is completely gone now), there is an acceptance that is what comes to substitute timber. However, you do not see much of the mine and Boddington is a rural community.” (Interview with a local informant, Boddington, May 2010)

The existence of the mining camp is seen as something that impedes community development and retards the growth of the area. Some respondents consider it to be the main reason restraining the settlement of long-term families, which according to the locals creates instability within the community. However, attracting long-term residents to the local community appears to be problematic. A number of factors that impede this process were indicated by industry representatives, including the notorious example of the Ravensthorpe nickel mine closure¹⁰; housing issues and local education. The closure of Ravensthorpe has severely impacted the image of the industry in WA and industry representatives indicate that even though there are policies in place to encourage people to live locally and relocation packages are offered to employees, not many people are willing to do so.

¹⁰ The Ravensthorpe nickel mine is located in south-west Western Australia. The project, announced by BHP Billiton in 2004, opted for a residential workforce. A lot of investments, both governmental and private were made in the area in expectance of a boom. In 2009, only a year after the mine commenced operation, BHP Billiton announced that the mine was going to be closed due to falling nickel prices. The impact on the local community was immense (see Browne et al., 2011; Stehlik et al., 2011, and McDonald, P., R. Mayes, et al. (2012).

People who are coming from Ravensthorpe are not willing to relocate to Boddington with their families, until they assure themselves that the company is stable. "They say: Let's wait at least 12 months, to see whether company will like us and whether we will like the company"(Interview with local informant, Boddington, February 2010).

The attraction of long-term residents appears to be a key challenge, in addition to notorious examples from community – mining experiences, housing availability and affordability come out to be another obstacle.

Housing

Another issue that impacts on attracting and retaining long-term residents in the community is housing in the area.

The house market in the case study area is very dynamic, characterised with increasing property prices for both rentals and sales. The limited housing opportunities and high prices are starting to have an effect on the local community even at the earlier stage of the mine development. Two reasons for the delays in housing development are identified: first, the lessons learnt from the Ravensthorpe experience and second, the aftermaths associated with the global financial crisis. Tight financing and developers' sensitivity additionally impact on the housing development in the area.

Housing is also seen as both an opportunity and a thread. Some consider this to be a good chance to sell properties and make money, while others are discouraged that they will never be able to afford to purchase a property in the area. Lack of affordable housing in general can have an undesirable effect and impede community sustainability. Higher prices and lack of affordable houses are forcing out long-term residents and/or people with intentions to settle within the community.

"Many people couldn't afford to stay in the area, especially if those people were previously renters. For example, cleaners at the school left because they couldn't afford the increased rents."(Interview with local informant, Boddington, April 2010)

*"...people are getting out of Boddington when the prices escalated with **** coming to town. " ."(Interview with local informant, Boddington, April 2010).*

Further, escalated house prices force low income tenants to leave the area and respectively influence the increasing of a drive-in-drive-out (DIDO) culture - where employees use road transportation to commute to work on a daily basis.

“Some people remained employed but sold up and went to the coast where properties were cheaper and they had money left over to pay off chunks of the mortgage. They now commute.”(Interview with a key informant, Boddington, May 2010)

“There is a serious shortage for housing, rents are as high as in Perth but the accommodation quality is not as good as there. When the mine first stopped in 2001, prices dropped significantly. Those who bought houses at that time, now managed to sell the properties at a very high price and buy new houses at the coast, these people still keep their jobs with mining in the area and commute to work every day.” (Interview with a key informant, Boddington, May 2010))

It is believed that when people have a mortgage in the locality they are more committed to the local community life. However, increasing property prices forcing people to leave the community as their permanent base and the expanding DIDO culture, along with the transient working force could potentially be a serious threat to the local community, impacting on sense of place and the levels of social capital and cohesion.

6. 4. Community’s social cohesion and levels of social capital

The sustainability of a community is considered to be its ability to sustain and reproduce itself at an acceptable level of functioning (Dempsey et al., 2011). This is normally associated with ‘social capital’ and ‘social cohesion’ as concepts that encompass social networks, norms of reciprocity and features of social organisation (Coleman, 1988). Knowledge and assessment of community social capital indicators could be seen as predictors of strengths and the challenges faced. Knowledge of social capital could enable improved understanding of rural resource community characteristics and capacity (Nelsen, Scoble & Ostry, 2010).

Information about the community’s social cohesion and levels of social capital was gathered through various sources, including the community survey, interviews with key local informants and ABS data. As a whole the studied community is characterised with a high level of existing social capital; however, there are indications that this is slowly starting to

change. Three main indicators were used to assess and understand the community’s social cohesion and level of social capital (see Table 23).

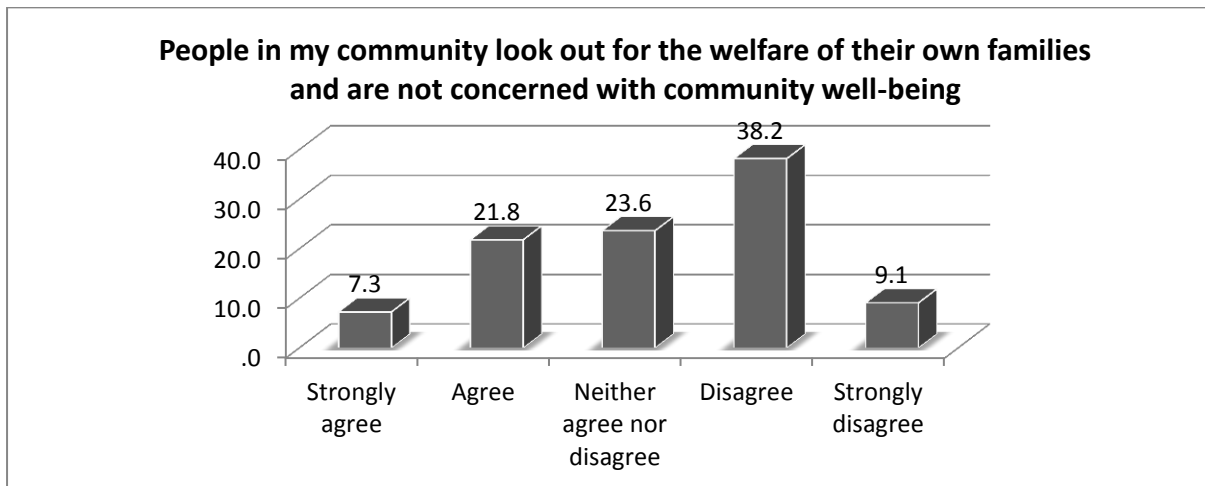
Table 23. Social capital indicators

Social capital indicators	
Indicator	Measurement instrument
Trust and the social environment	Survey questionnaire, interviews, secondary data sources
Social organisation and participation	Survey questionnaire, interviews, secondary data sources
Groups and networks	Interviews, ABS data, secondary data sources
Voluntary work within the community	ABS data

Rapid population changes and associated increases in the number of unacquainted, unfamiliar residents may contribute to a decline in trust in others in areas affected by boom growth (Freudenburg, 1986). General levels of trust are believed to be lower during periods of boom and higher during periods of greater population stability. The level of trust within the studied community was registered at the beginning of a period of change (November –December, 2010), a couple of months after the mine went from the construction into operation phase. According to one third of the respondents, the level of trust within the community members worsened since the re-commencement of the gold mine, while 47% believe it stayed the same. However, the majority of the respondents believe that people in their community do care about the community well-being and do not look out only for the welfare of their own families (see Figure 26). One third though thinks the opposite to be the case. Half of the local residents who took part in the survey report that the level of trust among community members remained the same and 16.4% stated it has improved since the gold mine started construction and the aluminium mine began its expansion.

Almost two thirds (63.6 %) of the respondents consider the community to be a good place to raise children. However, people were noting that Boddington is a perfect place to raise young kids but it is not good for teenagers. The lack of educational opportunities and perspectives as well as not enough entertainment activities for teenagers also appear as a reason why families with children want to leave the community, once their children become teenagers.

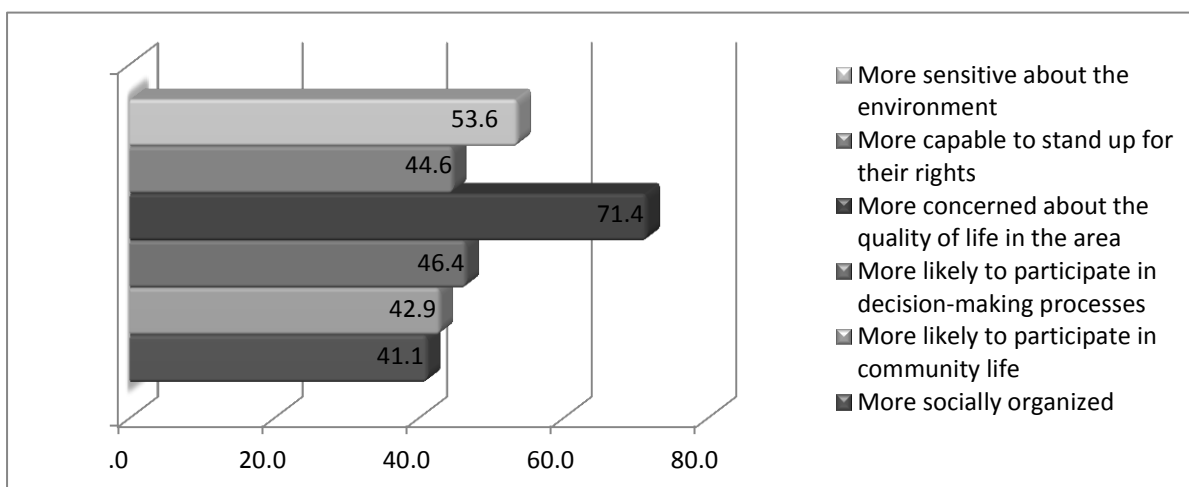
Figure 26. Community's cohesion



Source: Boddington community survey, 2010

It is interesting to see that while 71% of the interviewees think that since mining recommenced operation, people in their community are more concerned about the quality of life in the area, half of the respondents state that people in their community became more concerned about the natural environment (see Figure 27). The level of agreement for all other indicators, more capable to stand for their rights, more likely to participate in decision-making processes, more socially organised, varies between 41% and 46 %. This is an indication that every fourth person considers that the existence of a large-scale mine facilitates democratic practices enhanced through providing opportunities for residents to participate in the decision-making process and have their voice heard. Increasing the level and enhancing the opportunities for community involvement into the decision-making process is a very important aspect of the industry's role in creating social change.

Figure 27. Mining and community life



Source: Boddington community survey, 2010

It is interesting to observe the differences in the responses between men and women within the six categories. While every second woman believes that the presence of mining results in a more socially organised community and enhances participation in community life only one third of men within the sample think so. It is also interesting to note that on average 76% of the people who favoured these two categories are up to 45 years of age.

Still, half of the men surveyed believe that mining facilitates participation in the decision-making process, while this percentage is slightly lower for women. However, data shows that women are more concerned about the state of the natural environment (see Figure 28).

Figure 28. Mining and social organisation



Source: Boddington community survey, 2010

Social cohesion and inclusion are claimed in theory and policy to contribute to strong, fair and just societies for present and future communities (Lister, 2000). The number of active community groups and organisations in the town is significantly high - there are more than 30 active community groups and organisations or one community group per every 50 people. According to ABS census data for 2006, Boddington residents rank one of the top according to the share of population engaged in voluntary work done for a group or an organisation within the community in comparison to other Western Australian (WA) mining communities: 35% of the locals report they have done voluntary work, compared to 25% the average for WA mining communities. However, in 2011 this percentage was down to 20%, but is still higher than the WA average of 17% (ABS, 2012). The reasons for this significant change are

cumulative - expanding population with changing demographic and social structure, decrease in the amount of free time as well as the shift working hours.

It is evident that Boddington possesses the special features of a small rural community where higher levels of bonding social capital are quite typical.

“It is a small community and people help each other.”(Interview with local informant, Boddington May 2010)

The large number of active community groups indicates a vibrant and socially resilient community. Even though the community is familiar with industry rise and decline cycles as well as the nature of the mining industry, it has never been exposed to such dramatic changes, related to its structure and characteristics. It is evident that social cohesiveness and inclusion, interactions and participation in community life are currently in a process of transformation.

To cope with the rapidly emerging social changes, community members are trying to keep the level of the existing community spirit and are employing various initiatives to adapt to the new environment. Going beyond their initial function and turning into a self-sustained social network, the mothers' group for example plays an important role in integrating and providing support for newly arrived families. They actively apply strategies for sharing resources in helping each other to compensate for the lack of available baby-sitters for example, which seems to be another aspect of the limited human resources within the community. Interviewees also alarm that there is a serious problem with the provision of child-care services as they are not designed to suit full-time working mothers. Another strategy pursued by the local community resource centre is the annual welcoming dinner, an event aiming at introducing newly arrived people in town to other community members.

All this indicates a community with an initially very strong base of existing social capital, which is not surprising considering Boddington has been established as an 'organic' settlement, formed naturally around farming. However, the decline in some of the indicators, such as voluntary work done within the community, participation in community groups and sport events etc. signals an emerging change within its social environment.

6. 5. The emergence of ‘dependency’ culture/mentality

The advent of a large mining operation is often envisaged by local communities as an opportunity to provide resources and infrastructure as well as to improve quality of life and living standards (Auty, 1998, Frynas, 2005; Jenkins & Obara, 2006). Auty (1998) argues that this type of expectations risks increasing community dependence on a depleting asset, which according to him is an unsustainable process. A so called dependency culture/mentality occurring in communities neighbouring with extractive industries in developing countries has been described in the academic literature (Frynas, 2005; Ite 2005). It is associated with companies’ CSR practices and the provision of local infrastructure. Failure to involve local people in the process of delivery of infrastructure (Frynas, 2005) and CSR initiatives consisted of ad hoc projects rather than coordinated plans (Ite, 2005) were identified as agents for a mind-set and culture of dependency that impede local development.

This phenomenon has received minimal attention from scholars in developed countries. However, this “dependency’ culture is typical for mining settlements and more particularly single industry mining towns or company owned towns. The emergence of this phenomenon started with the establishment of company towns back in the 1970s where it was the responsibility of the company to provide all services necessary for a normal life to its employees and their families. However, there is a fine line between developing economic and infrastructure wise dependency, which is usually related to physical resources and the emergence of ‘dependency mentality’ on a societal level. In this section the emergence of the so called ‘dependency mentality’ on mining is discussed, I do not focus on pure economic dependency on a single industry and the alike issues, but rather reflect on themes related to higher social expectations related to the mining industry.

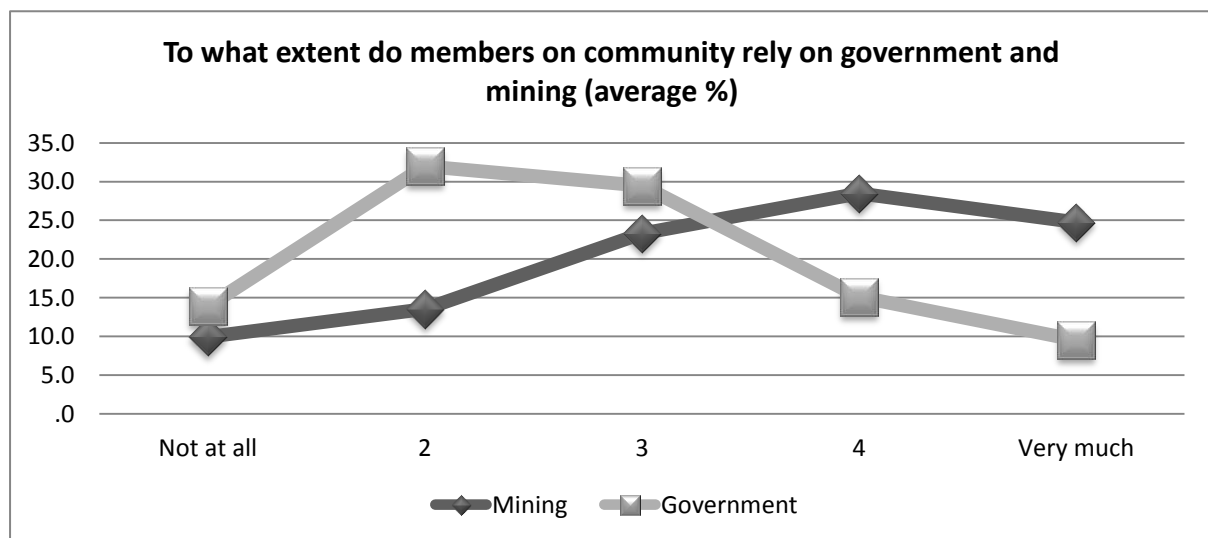
The theme about dependency on mining industry was first identified in the initial conversations with a local government official, indicating that Boddington is turning into a typical mining town with the emergence of a dependency culture.

“The mentality “the company will provide it for us’ starts to appear. There are lots of people who worked in other mining operations mainly in towns entirely owned by the company, they are used to lots of facilities and services, which the shire of Boddington cannot provide”(Interview with a key local informant, Boddington May 2010)

The expectations about what mining should be providing to local community have significantly risen, especially after the gold mine came into production. Community members have become a lot more demanding and are more likely to rely on mining rather than government for improving the quality of life within the community. In order to explore this further, questions about reliance on mining and local government were included in the community survey questionnaire. Community members were asked to indicate on a five point scale (from 1 'not at all' to 5 'very much') to what extent they think community members rely on government and respectively mining about a number of areas, most but not all of which usually fall within the jurisdiction of governments. People were asked to share their opinion about the following indicators: improving the provision and access to social services and facilities; improvements in infrastructure; supporting community events and initiatives; contributing to community development; taking care of cultural and natural heritage; provision of jobs in the area; contributing to the economic diversification in the region and initiating and supporting sustainability in the region.

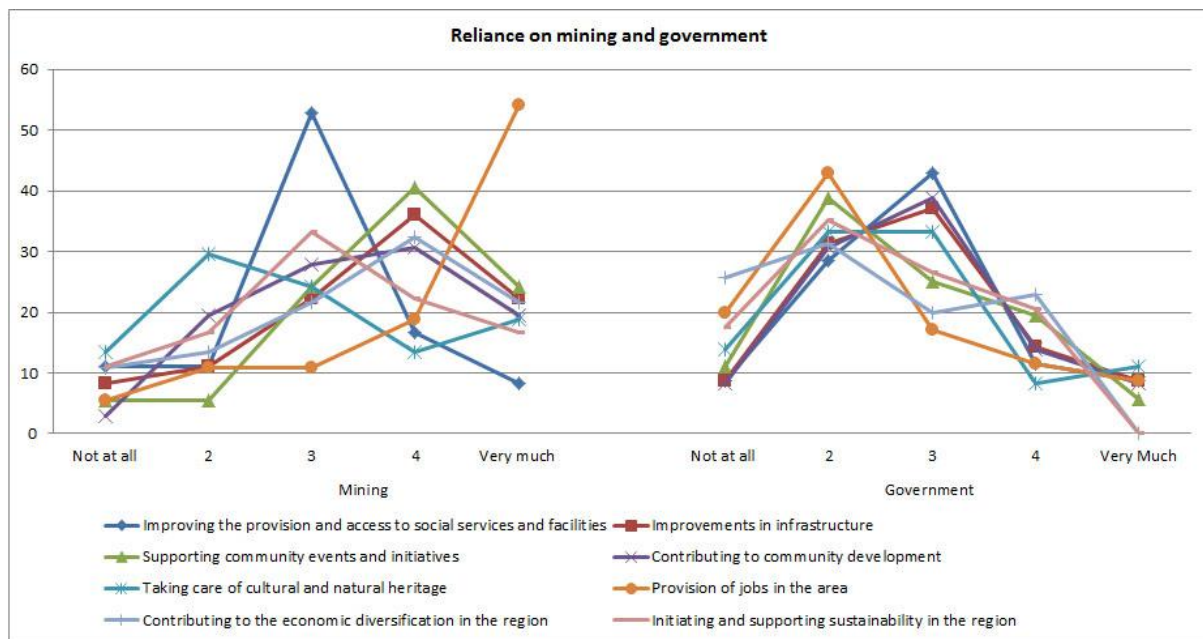
The results reveal that in general, people have much higher expectations for contribution by the mining industry than the government (see Figure 29). Provision of jobs, supporting community events and initiatives and improvement of infrastructure appear to be areas about which community members rely a lot on mining (see Figure 30).. Even though almost half of the respondents (44%) work in mining, there are no statistically significant correlations between industry field of employment and degree of reliance on mining, i.e. people working in mining also give higher rating to mining than government.

Figure 29. Reliance on mining and government (average %)



Source: Boddington community survey, 2010

Figure 30. Reliance on mining and government



Source: Boddington community survey, 2010

Higher expectations about the contribution of the industry were similarly observed during the interviews with key local informants.

*“...for what comes out of the ground and what goes into the community this is nothing. They should provide more money to the community, they should allocate bigger budget, have less constraints and assure more in-kind contribution.... ***mine is horrible with that; they act as if they are giving money out of their personal pockets.”(Interview with key local informant, Boddington, May 2010)*

Such expectations that the companies ‘owe’ something to the community and the associated reliance in relation to economic and community development may be resulting in community’s initiative being impeded now and in the future. This will inevitably reflect negatively on further social and sustainable development.

6. 6. Possible scenarios for the future without mining

The world we live today is characterized with a lot higher population mobility than even a decade ago. The Australian population is one of the most mobile populations in the world (DIAC, 2011). Mobility is a function of push and pull factors which operate differently across the country. The Population Distribution Effects of Migration in Australia Research Report (2011) shows that between 2001 and 2006, about 40% of the population aged 5 and over

changed their permanent place of residence (ABS, 2009a, 1) for a variety of reasons including employment, housing needs, stage of life cycle such as marriage and other types of household formation, and retirement (DIAC, 2011, p. 15). For Western Australia, this percentage appears to be a bit higher 46%. Boddington fits within the WA trend – 47% of the population has changed their place of usual residence between 2001 and 2006 (ABS, 2011).

Mobility is an interesting phenomenon that accompanies mining industry. Some thirty years ago when describing the recruitment of residents within mining company towns in Canada, Lucas (1971) observes:

“The company assumes that management, professional and scientific personal accepts mobility as a way of life; mobility is seen as a mutual advantage to company and employee. These expectations, generally reinforced by past practices, make mobility a condition of employment although it is seldom specified contractually.” (Lucas, 1971, p.42)

Today, the mining industry is still characterised with high mobility rates. Mining activities are strongly location bound as mining is set up anywhere resources are found. The nature of the industry pre-determines a high geographic mobility of its workforce. Additionally, a highly mobile working force is a key characteristic of the Australian mining sector. The ABS Labour Mobility Survey (ABS 2010) reveals that mining is the sector with the highest rate of job mobility with 21% of the workforce changing jobs over a year (in the previous 12 months as of February 2010) compared to 9% nationally (ABS 2010). Mining workforce studies do not report the number or frequency of relocations a mining employee may make in their career but rather focus on working conditions and the impact of these (Beach et al., 2003).

As it was previously discussed, Boddington is still considered to be an agricultural community by locals. However, the assessment of possible future scenarios about the likely life choice strategies in the case mining is gone, demonstrates that in this regard, residents’ responses resemble choices representative of typical mining town residents.

The community members were asked about possible actions that they would undertake if mining stops. They were given the opportunity to choose as many answers as relevant to them in between five options and also to specify any other possible action that would be relevant to them but was not listed as a possibility. The largest share of people, 41% stated they would move out of the area and follow other employment opportunities if for one reason or another mining in the area stops. Among those, 60% were employed in mining. Almost

one fourth of the respondents however, consider staying in town and look for other opportunities in the area. A further 20 % are determined that they would sell their properties while 17% would prefer to keep their real estate but move out of town.

When asked about what they thought other community members would do, two thirds of the respondents were convinced that other community members would leave mainly to follow job opportunities elsewhere. Almost one third or 30% of the respondents stated that local people would go back to farming or stick to their usual work.

Mobile working force, employee turnover and the high demand for workers from large-scale operations, as demonstrated in many social impact studies, contribute to the attraction of transient population to the locality. However, there is a difference between being mobile and being transient. A transient culture is something that appears to be very typical for the mining workforce, but so far has not been analysed in the academic literature. It is influenced by both the nature of the mining operations and the different stages it goes through (from exploration to construction, operation and closure) and the ‘mining work camps’ adjacent to towns. The transient workforce comprises of people who move often for a particular period of time following job opportunities and then move to the next location, without establishing any relations with the local community and not participating in its social life. According to Beach et al. (2003), the transient populations make it much more difficult to build and maintain a sense of community.

With a large workforce employed in mining outnumbering in times the size of the local population and adjacent to the town, Boddington’s social landscape is very likely to be affected by the emerging higher mobility and transient trends. Evidence about this process has been provided so far throughout the chapter.

6. 7. Summary of findings

The analysis shows that it is not mining in general but rather the scale of the operation that is influencing significant qualitative changes within the local social environment. Mining has been around the Boddington community for the last thirty years, however, such a significant demographic change and consequent transformations have not been observed until the gold mine’s re-commencement at a significantly larger scale. It is relatively easy to describe and to a certain degree explain the demographic picture of Boddington; however it is very

challenging to understand the impact the large-scale mining has on the local community in regards to long-term development.

The discussion so far reveals the main factors of pressure affecting the social sustainability of the community. Based on the social sustainability criteria outlined earlier in Chapter 3 by Colantonio (2011), three main sources of pressure changing the local environment and impacting on social sustainability can be drawn – demographic changes, changes related to the quality attributes of the local social environment and changes related to the functioning attributes of the local environment (see Table 24). These are issues that cannot be simply resolved by the industry itself through its social impact management plans or corporate social responsibility. They require the community to acknowledge this, take ownership and become an active agent of change in order to build its resilience and long-term sustainability. The impacts of each of these areas of change are generating within the local landscape are summarised below (see also Table 24).

Demographic change

The demographic change happening at the local community level is firstly and mainly triggered by the abundant employment opportunities resulting in large in-migration. At the same time, pressure on housing availability and affordability, along with the lack of appropriate education services and the difference in wages between mining and other industries, is influencing a process of out-migration, occurring however at a considerably smaller scale than the in-migration. The nature of the mining industry, which is location bound, pre-determines the high geographic mobility of its workforce. Higher mobility, the specifics of the mining life cycle, availability of housing and the preferences of mining companies to accommodate its workforce in temporary mine camps bring into life the transiency phenomenon. This encompasses the existence of a transient population and the associated transient culture. Transient population in the case of mining is normally referred to FIFOs and DIDOs. In contrast to the mobile population that is moving into town and staying there for a certain period of time, a transient population is marked by its work pattern - rosters (usually 8 days on, 6 days off) and long hours shifts. They are not believed to be part of the community, though using its facilities and putting pressure on social infrastructure. As demonstrated in the Boddington case study, transiency and the associated aftermaths indicate disruption of the normal functioning of the social environment. They cause disbalance of the

local population structure and also devalue levels of social capital and social mixing and cohesion, areas identified to be a key indicator for a socially sustainable community.

Changes related to the quality attributes of the local social environment

Demographic changes and the associated consequences outlined above were identified to be also the key sources of pressure on the local social landscape. The dynamics related to migration and employment patterns cause deterioration in the community's level of trust, social mixing, participation in local community life and voluntarism. It is evident that the levels of social capital and respectively social mixing and cohesion, are important factors in relation to the community's coping mechanisms in response to social change. Even though the community has been identified to have a strong base of existing social capital, there are indications of decline that manifest in decreased levels of participation in local community life and voluntarism. With population rise, there is evidence that the town's social organisation and functioning are transforming from a small rural community, characterised with bonding networks into a booming town.

The transformations associated with the qualitative attributes of the local social environment (i.e. social capital and cohesion) evoked mainly through population dynamics and the new types of residents (mobile and transient) are viewed also to impact on the community members' sense of place and identity.

Becoming evident through the community survey is that mining has implications for participation in community life and the decision-making process. An interesting observation was made related to gender disparities associated with public participation. The analysis demonstrates that women are more capable of utilising the opportunities that come from mining in regard to being involved in community life, while men feel more empowered to participate in the decision-making process.

These types of transformations occurring within the local social landscape are most intangible. However they are most likely to provoke societal qualitative change. Social sustainability is about change; it is a process of adaptation to the changes within the three pillars of sustainability (environmental, economic and social). It is a process and a goal at the same time. Therefore, conservation of specific structures or static qualities of societies are not realistic as sustainability in general refers to development, not conservation. Social capital however, is not always sufficient to sustain a local community, but it can play a critical role in

local community development initiatives (Dale & Newman, 2010, p. 8). Identifying community strengths that can influence coping and adaptation mechanisms is of crucial importance during the SIA process. It provides indicators how the community itself can employ adaptive mechanisms that can ‘fill-in-the-gap’ while the impact mitigation mechanisms undertaken by industry and government take place.

Changes related to the functioning attributes of the local environment

While analysing the changes related to the functioning attributes of the local environment related to social infrastructure and local business, two key phenomena impacting on the local social landscape were identified – the emergence of a dependency culture and appropriation of human resources.

The dependency culture/mentality has been previously extrapolated within resource dependent communities in developing countries. However it was demonstrated through the Boddington case study that there is strong indication of the presence of such phenomena within developed countries as well. This is very likely to impact on the local social landscape, may impede the potential of the local community development initiatives and may prevent it to take ownership of its own future. Currently, the biggest challenge the Boddington community faces is how to make the locals take advantage of the multiple opportunities resulting from the presence of mining and mobilise local resources to capitalise on them.

The appropriation of human resources within this particular case study was identified as an important factor impacting on the local business environment, putting pressure on other industries and challenging the local sustainable development. Delayed or lack of development in the local business environment in terms of retail outlets, hospitality and related services result in a disperse economic effect following space dispersed consumption. There is no doubt that basic amenities such as shop outlets and hospitality services are of key importance for the normal functioning of a place and for maintaining its social equilibrium. However in this particular case we witness that the advancement of new technologies, more specifically on-line shopping, is helping locals to overcome services constrains.

Rapid population increase including both residents and non-residents, puts pressure on the existing social and physical infrastructure. Even though the majority of impacts, especially those related to services and infrastructure, have been identified previously through SIA processes and other impact assessment processes carried out by industry and local

government, the management process of those types of impacts is proven to be time consuming and complicated, requiring cooperation of a number of stakeholders. As it is evident from the impacts identified by community members, deficits related to services and infrastructure provision, such as schooling, child-care and retail, are still quite corporeal. The gap between the emerging impacts till the mitigating management mechanisms implemented, encourages community members to employ grass-roots mechanisms within the community to compensate for social underservicing. Such grass-root initiatives require certain level of social capital, which seems to be diminishing with mining.

A key issue outlined in this study related to the functioning attributes of the local environment is associated with community mechanisms and strategies to capitalise on existing opportunities. Currently there is a vacuum between existing opportunities and available resources required for sustainability. The study makes explicit the problem about empowering the community to be a ‘creator’ of its own future. There is a need to employ mechanisms that encourage and build up local capacity to ‘create’ opportunities rather than simply consume what local government and mining companies are providing. Such process would require the local community to be an active actor in creating opportunities, not just being a passive consumer. To be successful such process must involve the use of more democratic community inclusive methodologies, which will assure that community members are aware of what are the opportunities resulting from development. The findings of this study demonstrate that the community is more oriented towards consumerism rather than creation, which questions the real dimensions of any project’s development benefits. This comes also as a result of how the development benefits are presented to the local community. There is need to re-think the way benefits of mining are presented to local communities. Emphasis should be put on the fact that mining creates opportunities upon which local communities should capitalise and current messages that mining unquestionable ‘brings benefits’ to communities should be deemphasised. This study demonstrated that the presence of mining does not mechanically bring opportunities; it creates the basic means for a potential future utilisation.

6. 8. Discussion of findings

The study identified three sources of pressure changing the local social environment and impacting on social sustainability, i.e. demographic changes; changes related to the quality attributes of the social environment and changes related to the functioning attributes of the

social environment. These sources of pressure impact on the 5 key social sustainability criteria decomposed into 25 social impact indicators. Some of these indicators have been widely considered and reflected into current SIA methodologies, such as indicators related to demographic change and the functioning attributes of the local social environment. However, indicators related to the quality attributes of the local environment have not been yet fully acknowledged in existing SIA methodologies (see 4. 2.3). These indicators represent (1) level of social trust; (2) social cohesiveness and mixing; (3) participation in community life; (4) voluntary work done within the community; (5) identity, sense of place and culture and (6) social participation and organisation. As defined, they refer to the three key social sustainability criterion related to the quality attributes of the social environment – (1) social capital, mixing and cohesion; (2) identity, sense of place and culture; and (3) empowerment, participation and access. These indicators are influenced by factors related to demographic changes, such as in- and out-migration, employment patterns (roster shifts) and the availability of free time; and transiency - a newly identified phenomenon that has not been yet isolated as a social impact factor.

The findings of this chapter are summarised in Table 24. They exemplify the interconnectedness between social impacts indicators and factors. It is evident that indicators that are identified in relation to social sustainability under particular circumstances may become social impact factors and influence change of other indicators. For example, transiency has been identified as a social impact indicator that is associated with demographic changes and is influenced by the mining industry nature. As a social impact indicator, the intensity of the transiency phenomenon characterises the state of the local environment and informs about emerging social changes. However, transiency on its own impacts mainly on the qualitative attributes of the social environment. Therefore, social impact indicators can act as social impact factors at the same time.

This fact brings forward the importance of interpreting social impacts not as isolated indicators but to pay more attention to the interactions between indicators and factors, and changes in their functionalities. Social impact indicators and social impact factors appear to be inter-connected and mutually dependent.

The analysis also demonstrates the interconnectedness between the characteristics of the qualitative and functioning attributes of the local social environment and how they have the potential to influence each other's functionalities. This makes it evident how important it is

for qualitative attributes (such as social capital and cohesion, sense of place, and culture, empowerment and participation) to be taken into consideration in social impacts assessment methodologies, social impact assessment management plans and local development strategies. From a sustainability point of view, the holistic understanding of the local environment is of key importance as it relates to the process of dealing with societal changes. As it was previously discussed in this chapter (see Section 6.4), the ability of a community to sustain and reproduce at an acceptable level of functioning is dependent on the existing levels of social capital and social cohesion (Coleman, 1988). Considering such indicators in SIA methodologies and SIMP is essential to understand and inform about resource communities' characteristics, abilities to cope with change and moreover its capacity to participate in democratic decision-making practices and capitalising on opportunities.

Changes related to the functioning attributes of the local social environment are the main focus of current SIA methodologies as most of the SIA practitioners still implement strictly the traditional approach (see Section 2.2) (Esteves&Vanclay, 2011). However, what is currently not fully realised in existing methodologies, is the linkage between qualitative attributes i.e. indicators such as social capital, mixing and cohesion and sense of place and the functioning attributes associated with well-being, quality of life and health and safety. The interaction between these two attributes plays an important role for long-term sustainability.

Taking into account soft concepts also allow for better identification of potential opportunities for local communities and moreover provide understanding of the community's capabilities to capitalise on opportunities. As it was discussed previously in this chapter, communities are not always able to benefit and develop further the potential opportunities emerging as a result of mining. Paying attention to softer themes would shed light to the challenges that a particular community is facing and help the development of appropriate strategies for closing the gaps between possibilities and realities.

Table 24. Social factors contributing to disturbances in the local social landscape

Social factors contributing to disturbances in the social landscape				
Sources of pressure changing the local environment and impacting on social sustainability	Social sustainability thematic area/criterion	Social impact indicators	Factor level	Social Impact Factors
Demographic changes	Demographic change	In-migration	local	Employment opportunities
		Out-migration	local	Housing, education, difference in wages
		Mobility	national, global	general population movement trends, caused by the nature of the industry, employment opportunities, emerging new lifestyle strategies
		Transiency	national	nature of the industry - e.g. lifespan of mining operations, different stages of mining operations, organisation of the workforce (DIDO/FIFO)
		Population structure disbalance	local	workforce nature, mobility patterns,
Changes related to the quality attributes of the local social environment	Social capital, Social mixing and cohesion	level of trust	Local	demographic changes - in-migration, transiency
		social cohesiveness and mixing		in-migration, transiency
		participation in community life i.e. community groups and organisations		employment patterns, free time, transiency
		voluntary work done within the community		employment patterns, free time
	Identity, sense of place and culture	Identity, sense of place and culture	local	transiency
Empowerment, participation and access	Social participation and organisation	local community driven/	sense of place, employment patterns	
Changes related to the functioning attributes of the local environment	Well-being, Quality of Life and health and safety	Services and social amenities	local, regional , state	appropriation of human resources, planning process
		Housing		In-migration, planning processes
		Local business environment		appropriation of human resources, planning process, dependency mentality, transiency
		Health and safety - traffic, noise and road accidents, alcohol and drug abuse	local, regional	mining activities, demographic changes - in-migration

6.9. Conclusion

In this chapter, the specific theories about social impacts and social change processes were linked to the case study. Various social impacts, at a local community level inter-connected and mutually dependent, were identified. However, there still remains the question what role can mining play in order to contribute to a socially sustainable community. In the next chapter, the role of mining for social sustainability is discussed.

CHAPTER SEVEN – MINING CONTRIBUTION AND ITS RELATION TO SOCIAL IMPACTS

7. 1. Introduction

Ten years after the MMSD project set the goals for sustainable development within the mining and minerals industry in 2002, IIED analysed what have been the achievements against these goals so far (Buxton, 2012). Community development was identified as one of the biggest challenges for the mining and minerals industry (Buxton 2012, p. 18). The new agenda for mining is shaped by the changing geopolitics and the fact that mining is taking place in more fragile and complex ecosystems and social situations. The debate about CCD has shifted from what and how much has been delivered towards the discussion of “who delivers” and the roles and responsibilities in partnership (Buxton 2012). Wider debates on “resource nationalism¹¹” and greater community expectations shape the new discussion about community-level development. The ‘social contract’ is no longer about jobs and taxes (Buxton, 2012 p. 29), many governments including Australia, Russia, Peru and Algeria for example demand a larger slice of the commodities boom, raising taxes and royalties.

A key focus within the industry now is to maximise the legacies mining is leaving behind, which is being shaped by the emerging greater community expectations (ICMM 2012). One of the essential elements of a sustainable community development, identified by the ICMM, emphasises that CSI and CCD programs and initiatives should be able to survive without the input from the company, especially after the mining project has finished (ICMM, 2012). An important aspect of the sustainability agenda within the mining and minerals industry however, is the vision that mining should not be treated as an agent for development, but rather as a catalyst. Despite this, community level development, still remains a complicated field in both rhetoric and implementation (Buxton, 2012). It is one of the most difficult areas of CSR implementation practices as it is particularly determined by local specifics, conditions and visions of mining companies, and at the same time is inextricably linked to other factors taking place at a global level.

When setting up the research theoretical framework earlier in Chapter 3, CSR and more particularly CSI were identified as key methodological approaches towards understanding

¹¹ Resource nationalism is assumed to limit the operations of private resource companies and asserting a greater national control over natural resource development.

social sustainability. This chapter analyses the contribution of mining to local communities and assesses its social implications. It answers the second research question of this study - what is the role of mining for social sustainability.

It begins with an outline of the data collection process and data analysis methods (Section 7.2). Section 7.3 discusses the contribution of mining to community's sustainability. Section 7.4 talks about companies' understandings about community as a contribution target and proceeds with analysing the contribution of the two companies operating within the case study area. In Section 7.5 an attempt to link the contribution of mining is linked with the social impacts identified earlier in Chapter 6.

7.2. Data collection and analysis

Gathering information about the contribution of mining was a long, full with impediments, process. It involved meetings and discussions with company representatives, but most of them used 'ritual talking', reporting on what the company was doing best. The information that came out from these talks does not provide a lot of insights on the actual process of developing and implementing policies and strategies adopted by the industry. It needed to be supported with secondary data as well as information from involvement in other meetings and cooperation with industry. The gold mine assisted in acquiring all the necessary permissions to allow a mine site study visit in August, 2011. The bauxite mine sites immediately adjacent to the town were also visited as part of the observations.

The analysis below reflects on the issues gathered from interviews and discussions with company representatives acquired in the period August 2010 - February 2012.

A total of 6 interviews with company representatives involved in CSR at a local level were conducted. The interview process followed a free discussion and was initially guided by indicative questions covering main aspects of the CSR agenda and social impacts of the mining operations.

The following documents were considered in the analysis:

1. Companies' sustainability reports for 2011, both documents are publicly available accessed through the respective companies' websites
2. Companies' SIAs
3. Companies' social investment policies

4. Local community organisation web-sites
5. Articles from Australian newspapers, released around the time of the official opening of the gold mine

All data was analysed employing the QDA technique to identify key themes and patterns throughout the study (for further details on the data analysis methods see Chapter 4). As the documents covered in this research (including the sustainability reports and SIA) include a wide range of information, only data related to CSI and CCD was taken into consideration. The period selected for the press-clippings was determined by the opening of the large scale operation, announced on 4th of February, 2010. Expected to become the largest open-cut gold mine in Australia, surpassing the Kalgoorlie super pit¹², this event received large media attention. Publications and video materials from the following media were analysed– The West Australian, The Australian and the Australian Associated Press.

The analysis looks at how the mining industry contributes to the local community as a whole. It does not aim to compare or assess companies' corporate policies. Various approaches are discussed only in order to capture the overall picture. The contribution further is described as being made by the industry to the area as a whole and not by a particular company or a particular event.

7. 3. Setting the context - the contribution of mining to community sustainability

The question about the role of mining for long-term community sustainability has been within the scope of the mining industry CSR discourse since the 1992 Rio Earth Summit. In the early 1990s, the industry started to realise the need for it to respond to the challenges of the sustainability agenda. Going beyond the daily argument whether mining is sustainable the focus moved towards the question as to how it can contribute to sustainable development in the areas it operates.

The literature on the mining industry contribution to local communities mainly focuses on examples from developing countries, where mining plays an important role for development, poverty reduction and improving the quality of life within communities where it operates (Kapelus, 2002; Hamann, 2003; Hamann & Kapelus, 2004; Jenkins, 2004; Frynas, 2005;

¹² Kalgoorlie Super Pit is currently Australia's largest open-cut mine

Eweje, 2006; Jenkins & Obara, 2006; Kemp, Boele & Brereton, 2006; Sagebien, Lundsay, Campbell, Cameron, & Smith, 2008; Muthuri, Matten & Moon, 2009; Kemp, Owen, Gotzmann & Bond, 2011). The more limited literature on mining contribution in developed countries is mainly focused on economic development and service provision (Freudenburg, 1992; Freudenburg & Gramling, 1994; Auty, 1995; Sachs & Warner, 1995; Auty, 1998; Yakovleva 2005; Lawrie et al., 2011). It is argued that mining favours economic development and enhances economic benefits within the communities it operates, by providing employment to local residents, boosting the local economy by using local services and regional development as a whole through provision of infrastructure and services (Dorian & Humphreys, 1994; Eggert, 2000). It has also been explained that abundant employment opportunities result in significant demographic change that brings along a number of negative impacts, such as disruption of the social balance in the community, increased cost of living, stress on the local water supply, disturbance to and increases in socially undesirable activities (e.g. prostitution) (Hilson, 2002; Vanclay, 2002; Petkova-Timmer et al., 2009).

The role of mining for sustainability is the contribution that mining makes to local communities to assist them in meeting locally defined social, economic and environmental goals (International Institute for Environment and Development, World Business Council for Sustainable Development. et al. 2002). The notion about “contribution” is quite complex and broad in terms; however it is interpreted mainly within the sustainability and corporate social responsibility realm. A unified terminology has not yet been adopted and the contribution of the mining and minerals sector is often referred to and defined as corporate social investment, corporate community investment (CCI) and corporate community development (CCD). The use of these terms is quite inconsistent. Corporate social investment¹³ or as often referred to as corporate community investment and corporate community development is a rather new area within the research domain (Esteves, 2008a). It is argued that current management theories provide limited guidelines on addressing investment in social development and rather focus on values and ethics (Esteves 2008a). Hence, CSR in general appears to have serious limitations in responding to the challenges of the role of mining for sustainability.

Over the last decade, a number of global rules, guidelines and frameworks (such as ICMM sustainable development framework, GRI reporting framework, IFC performance standards, United Nations Global Compact etc.) on sustainable development and resource extractive

¹³ In this thesis I use the term “Corporate social investment”

industries have emerged (see Section 3.4); however challenges for the success of translating these policies at the ground level continue to exist. The global guidelines and reporting frameworks emphasise the measuring and mitigating impacts and community consultation. Muthuri (2008) argues that the social impacts of corporate investment in the community has been a largely neglected area, as the current established measurement frameworks such as GRI for example, focus mainly on the business inputs in the community (e.g. cash and in-kind donations, volunteering, management costs etc.) and have limited ability to grasp the community impacts. Owen et al. (Owen, Swift & Hunt, 2001) point out that to measure the contribution of corporate investment to community sustainability it has to be determined whether the corporate activities meet the needs of the local community and improve their private benefits.

7.4. CSI and CCD within the mining industry

The CSI and CCD practices strive to enhance the local social environment and contribute to sustainable communities and are generally entirely in the prudence of mining companies. These practices refer mainly to the voluntary aspects of company community investments aligned with the sustainability agenda. Unlike social impact management plans (SIMP) which primary goal is to mitigate the negative impacts associated with a particular mining operation and are developed in cooperation with government authorities, CSI and CCD aim at contributing and enhancing living conditions at a local level.

The discussion about the role of mining for community's sustainability requires an understanding that sustainability is a social construct where multiple paradigms exist (see Chapter 3). CSI and CCD have been used to “describe activities undertaken within communities in the geographic proximity of operations that aim to achieve positive economic, environmental and social outcomes for communities in which operations are located” (Kemp 2009, p. 203). The ICMM, the mining industry's peak organisation, in its latest Community Development Toolkit (ICMM, 2012), provides a thorough definition of what community development within the mining industry context refers to:

“The process of increasing the strength and effectiveness of communities, improving people's quality of life, and enabling people to participate in decision-making and to achieve greater long-term control over their lives. Community development aims to empower and help communities to improve their social and physical environments, increase equity and social

justice, overcome social exclusion, build social capital and capacities, and involve communities in the strategic, assessment and decision-making processes that influence their local conditions.”(ICMM, 2012, p. 203)

The definition provides clear guidelines for what companies should aim at when putting into place CSI and SD plans. It emphasises the empowering of local communities to take ownership over their long-term development and stresses the enhancing of local social capabilities. However, the implementation of such programs depends on two main conditions: first, this is the company’s vision about CSI and CCD and second, the specifics of the local environment differ. Based on international principles and guidelines, each company has its own understanding about what CSI and CCD implementation consist of. Analysing 15 sustainability reports and web-sites of transnational mining companies, Kemp (2009) identifies nine areas of activities embedded into the CSI and CCD agenda:

1. Employment (direct or indirect through the supply of goods and services);
2. Training and skills development;
3. Provision of infrastructure (such as roads, water and sanitation facilities);
4. Service delivery (such as health and education);
5. Employee volunteerism;
6. Donations.

Esteves and Vanclay (2009) propose a broader view on mining companies’ contribution to local communities, by identifying nine areas of action:

- Taxes and royalties to local governments;
- Royalty and compensation payments to landowners;
- Employment (wages);
- Local procurement (the purchase of goods and services as inputs for the mine);
- Investment in services and infrastructure which may have spin-off benefits to the wider community and to unrelated businesses;
- Investment in community programs, to achieve outcomes in areas such as capacity-building, environment, arts and recreation, health and wellbeing;
- Support for volunteering efforts by employees in the community sector;
- Provision of inputs for downstream business activities, such as processing, refining and fabrication; and
- Indirect benefits through the multiplier effects of the above activities.

A survey conducted by the GRI, University of Hong Kong and CSR Asia (GRI, 2008) reports that the most frequent contributions reported by companies include education and training, followed by philanthropy and charitable giving, community services and employee volunteering, total community expenditure and community engagement and dialogue. The report concludes that community engagement appears to be the most important topic within the mining industry. This is probably due to the fact that community and stakeholder engagement is the most important factor in acquiring the social license to operate. However, mining companies do not report as frequently as other companies about community services and employee volunteering for example.

The areas of contribution by mining to local communities outlined above demonstrate that it is a complex, multi-level practice, including both voluntary and mainstream contribution. In order to explore the contribution that the companies operating within the case study area make and link it to the social impacts of mining that the local community experiences, I first analyse how community is defined through a mining operation perspective.

Definition of community

In general, mining companies and more specifically transnational corporations abide with international performance standards and guidelines and develop their CSI and CCD visions and policies accordingly (see Chapter 3 for international frameworks and guidelines on sustainability). Both Boddington mining companies are signatories of the key reporting frameworks for the industry – ICMM and GRI. As it is demonstrated further on, the two companies operating in the area have a different vision about sustainable community development. Before any further analysis I first outline the two company's definitions of community.

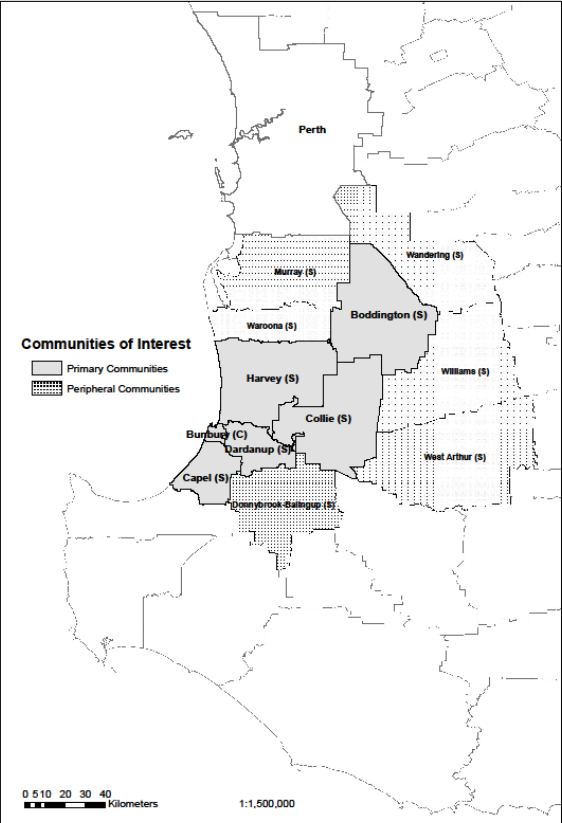
The broader definition of local community widely accepted within the mining industry sees it as both a geographic and social entity. As defined by the ICMM in its Community Development Toolkit, local community is:

“A social group possessing shared beliefs and values, stable membership and the expectation of continued interaction. It may be defined geographically, by political or resource boundaries, or socially as a community of individuals with common interests.”(ICMM) 2012, p. 203)

Both companies understand their local community of interest as a number of settlements geographically located around the physical boundaries of the mining operations and treat them rather as geographical locations around the mining operation rather than as a social group with common beliefs and continued interactions (Company A sustainability report, 2011. Company B sustainability report, 2011). The gold company has defined its local community of interest as the settlements falling within the 50km radius of the mine including Boddington, Quindanning, Dwellingup, Wandering and Williams.

The bauxite mine is immediately adjacent to the town, however its entire operation including the mining, processing and production sits across a number of local government authorities (LGA) and therefore, it has a very dispersed community(ies) of interest (see Figure 31). It comprises of the immediate locations where the company operates directly. The company has defined three primary communities of interest, including Boddington and six communities of secondary interest. The two different understandings about communities of interest explain the different focus and approach the companies have in their CSI initiatives towards the Boddington community.

Figure 31. Communities of interest – primarily and secondary



Prepared by Dr. Roman Trubka

To demonstrate the companies' understandings and visions about CSI and CD, an analysis of their sustainability reports for 2011 and local level contribution practices, is carried out in the following section.

Global frameworks and local agendas

This section analyses the global and local implications of the contribution of the mining at a community level for the two companies operating in the case study area. It starts with an overview of the local level contribution described in the companies' sustainability reports for 2011, and continues exploring the actual implications at a local level. The analysis is primarily focused on the impacts from the presence of the industry as a whole, however emphasis is put on the large-scale gold mine as it has more implications on the local community environment. The bauxite mine is also considered to be a factor and therefore it is included in the discussion.

Sustainability reports in general include information about how the respective mining company addresses sustainability at an operational level. As the main focus of this discussion is the aspects of social sustainability, attention is paid on the sections related to it. The 2011 Sustainability Reports¹⁴ of the two mining companies are publicly available documents and have been accessed through the companies' web-sites. Further, information at the case study level was gathered through interviews, meetings and discussions with companies' representatives responsible for CSR and CSI.

The gold mine

In its sustainability report for 2011, the company operating the gold mine emphasises its commitment to empowering communities to define problems and solutions to effectively address development challenges and contribute to sustainable development. A key focus is to ensure that created value continues after operation closure.

“We collaborate with local communities to ensure that our investment programs effectively address local development challenges, leverage both external and internal resources through partnerships, and contribute to sustainable outcomes. In particular, this means that the

¹⁴ From now on, I will differentiate between the two companies reports and documents as Company A and Company B in order to keep consistent and not mention the names of the companies operating within the case study.

shared value we create in partnership with communities should continue after our operations close. Oversight mechanisms are also required to prevent inappropriate uses of investment funding and the potential for corruption.” (Company A sustainability report, 2011)

Four key areas of corporate social investment that contribute to community development are underlined in the company’s sustainability report for 2011. These are: (1) local employment and local economic development through hiring local contractors; (2) training and marketable skills development within employees, (3) donations and in-kind contribution to local communities, (4) disaster relief and fundraising (Company A sustainability report 2011).

Over the 2011FY (financial year)¹⁵ 62% of the company’s global community investment was allocated for public infrastructure (21%), farming (15%) and other not specified activities (26%), and 13% has gone to community capacity building.

At a local level, the company emphasises three primary areas of contribution to the community – (1) local employment and local economic development through “Buy local, hire local” policies, (2) taxes and royalties, (3) donations and sponsorship to community groups, organisations and events and (4) investments in the workforce through training and skills development. However, taxes and royalties does not represent a direct contribution as the company is obliged by law.

The company’s employment policy is to primarily hire locals, and aims at maximising the local employment within the 50km radius of the mine, which includes not only Boddington, but the surrounding settlements of Quindanning, Dwellingup, Wandering and Williams. As of July 2011, there were 199 local residents (complacent with the company’s definition of local) out of 1457 total workforce or 13.65% of the total mine workforce was hired locally. At the time this analysis was undertaken, no statistical data on labour force and occupation was available from the 2011 census¹⁶. Therefore, it was not possible to reflect on the contribution that mining makes as an employer in the area. However, data from the 2006 Census, reveals that the most common industries of employment within the Boddington Shire were basic non-ferrous metal manufacturing (14.2%), sheep, beef cattle and grain farming (12.5%), metal ore mining (9.7%), school education (5.4%) and land development and site preparation services

¹⁵ The financial year in Australia is from 1st of July to 30th of June

¹⁶ Expected release date October 2012

(4.6%). This shows mining as the third most significant industry in the area. The large scale of the mine and the lower unemployment rate within the communities of interest¹⁷ demonstrate that it is not practically possible for the company to allow for extensive local hiring because the available workforce in the area defined as local is quite limited. The mine requires a large workforce that outnumbers the total active labour force within the defined area¹⁸. The total labour force of Boddington, Wandering and Williams equals to 1371, and the unemployment rate within the area is negligible, below 2%.

In order to enhance its local contribution, policies to attract resident population have been put in place. The company encourages and stimulates employees to relocate and live locally while working for the mine. However, as previously indicated in Chapter 6, limited housing options and experience from unexpected closure of other mining projects in WA do not favour the process, hence the majority of the workforce resides in the mining camp. A comparison between the 2006 and 2011 census data reveals that over the five-year period, 13 new families with children under 15 years of age and in total over 40 families with dependent children moved into the Boddington area. However, in statistical terms the ratio of families with children to families with no children has not changed between the two censuses.

To support the process of attracting residential workforce, the company is working with governmental agencies to assure that the provision of necessary facilities is on place. This includes provision of housing – e.g. helping with the identification of investors, land allocation etc. In addition, to facilitate the process, the company has provided land for the development of 64 lots and also donated 2 residential lots to support a Long-Day Child Care Centre.

The company delegated all the delivery of social infrastructure and facilities to the local authorities. Previous experience and examples related to infrastructure entirely built by mining show that these practices are not really sustainable and viable, because once the mining is gone, it has not been possible for local governments to maintain them (Lucas, 1971; Cheshire et al., 2011). Trying to minimise the dependence on the presence of the operation and to avoid the paternalistic approach of providing everything, the company committed to

¹⁷ Unemployment rates for 2010 – Shire of Boddington 1.7%, Shire of Wandering 6.7%, Shire of Williams – 0.7% (ABS 2011)

¹⁸ For 2006 the total labour force of Boddington, Wandaring and Williams equals to 1371 (ABS, 2007)

allocate funds to the local shire, so that it can decide what is a priority for the community and use the money accordingly. These financial funds can also be used as a base for attracting other funding from state and regional agencies.

The company has also developed a “buy local” policy, which aims to maximise the use of local companies as contractors and thus encourage the development of local businesses and services. Local procurement by the company is outside the scope of this thesis, as it has only in direct social impacts and is not investigated any further. However, as already indicated in Chapter 6, the implications of the presence of mining on the local non-mining related business within the township has been controversial. It appears that there are two sides of the coin, on one side people’s high beliefs and expectations about the contribution of mining, and on the other, the real impacts on the subdued local business development.

As part of the company’s social investment policy, a community assistance program was set up that offers financial support to NGOs, local government authorities and business organisations at the local level on a case by case basis. A key condition for any proposal is that the project does not develop an on-going dependence for funding from the company (Company A Social Investment Policy, 2011). According to company representatives, the main advantage of this particular program, apart from providing funding, is that it contributes to the community’s capacity building by providing skills and avenues back to community members. By applying for grants community members are taught how to write proposals and business marketing plans, how to engage with small businesses, in other words how to increase their capacities. However, the main contribution of this initiative so far is mainly through the sponsorship of various community initiatives, groups and events. There are no examples of business development initiatives funded through this program.

Skills provision to employees including Boddington residents; training programs; traineeships, health and safety have also been acknowledged as key contributions to the local community.

The bauxite mine

The company operating the bauxite mine, also highlights the development of partnerships with the host communities; however it aims at improving their quality of life using pre-set indicators through development plans based on data gathered from the SIA and opportunity assessment (Company B Sustainability Report, 2011).

“Our community development programs are driven by our desire to improve the quality of life of people in our host communities. XXX operations implement their programs using community development plans that have been developed in consultation with local stakeholders. The plans are formulated from data gathered from an impacts and opportunities assessment and a baseline social study that includes education, health and environment quality of life indicators. Community development projects are selected on the basis of their capacity to impact positively on the quality of life indicators.” (Company B Sustainability Report, 2011)

Corporate social investments towards community development at a global level for 2011FY were provided for community programs, contribution to the group’s charitable foundations, with 53% being invested in local communities, 22% regionally and the remaining 25% spent on national and international level (Company B Sustainability Report, 2011). The largest share of community investment funds 27% was allocated for training and education, followed by 20% community support and capacity building and 17% for infrastructure projects.

In its 2011 Sustainability Report the company identifies five areas of contribution to society at both global and local level. This includes: (1) taxes and royalties; (2) development of infrastructure and services; (3) adding economic value through employment (direct and indirect) and training of local workforce and local procurement; (4) investments in community projects that improve quality of life such as education, health and environment and (5) supporting employee’s contribution (match giving program). Again, taxes and royalties are a legal obligation for the company.

At a local level, the company provides direct community sponsorship for a range of projects from large infrastructure to support of community groups. The company’s community social investment was revised following corporate guidelines at a global level. Consequently it aims to support projects and activities that can improve the quality of life in host communities, while prioritising maintenance and development of public infrastructure, supporting healthy, happy and safer communities, encouraging sustainable living (through rehabilitating and sustaining impacted ecosystems) and enterprising communities (through business support, education and training, leadership development and elite sport development).

For the 2011FY, the company’s social investment comprises over \$150 000 through donations and sponsorship of a number of community groups within the shire of Boddington.

An important part of company's community investment is the contribution through the "Matched giving program", which aims to increase employee's contribution to the local community, by matching on a dollar for dollar basis voluntary and their contributions made to non-profit and community organisations its employees support (BHP, 2009). This means the company will give the eligible non-profit organisation an amount equivalent to the money its employees donate, or gain through fund-raising activities, or a payment in recognition of the volunteer work they do for eligible non-profit organisations.

The analysis so far demonstrates that the two companies understand the contribution towards the local community sustainability to be related mainly to the four key areas of: (1) provision of jobs and economic development of the local environment, including taxes and royalties paid, (2) contribution towards local community groups and community social life in general, (3) investments in infrastructure and (4) training and skills development. These key areas of contribution are associated with four different aspects of the local environment, namely – social, human, economic and physical, interpreted within the respective forms of capital. The following section analyses each of these contribution areas and links the latter to social impacts.

7. 5. Mining contribution and social impacts

The contribution related to social, human and economic aspects of the local environment fall within the temporal realm (Freudenburg & Gramling, 1998). They are all linked to the project lifespan and the presence of the industry in the area, while investments in the physical environment do not necessarily depend on that to survive in the future. This section analyses the contribution that mining industry makes to the local community and weighs it against the social implications it evokes. A special attention is given to the social and economic aspects of the contribution of mining, as many of the social impacts triggered by the industry presence are inextricably related to them.

The analysis below draws on information gathered from the community survey, interviews with company representatives and analysis of the companies' sustainability reports.

Contribution to social capital

Through sponsorship, donations and in-kind support to community groups and organisations, the industry contributes to building, enhancing and sustaining the level of existing social capital, which is critical for social sustainability. In general, as discussed in Chapter 3, this

type of activities fall within the corporate philanthropy realm of CSR, as they are primarily associated with providing cash. Driven mainly by external stakeholders' demands, it has been argued that the peripheral philanthropy translates positive reputational effects into concrete bottom-line impacts (Bruch & Walter, 2005). However, this model has proven to facilitate pathways towards socially sustainable community within this particular case study.

Sponsorship of community events and in-kind contribution were identified as the most significant industry contribution to the local community in the survey. In the Boddington case study, mainly community groups and organisations are driving the direction of the industry CSI. These practices are generally ad hoc in their nature, as community groups and organisations approach companies on a "when it is needed" basis. Locals appreciate this kind of practices as they do not require much effort to be acquired and in most aspects have immediate results. However, industry keeps its right to reject requests for support if they do not align with their policies or breach other principles and/or frameworks to which they are signatories. Such kind of relationship between community groups and mining companies provides a good example of a synergetic approach towards sustainability. Lead by the community rather than imposed by the industry, the activities result in building and maintaining levels of local social capital, mixing and cohesion as well as participation in community life.

Investing in activities that enhance social capital and cohesion at a local level is fully aligned with the corporate visions related to sustainability, outlined earlier. One of the strongest aspects of this kind of social investments is that they engage community members and make them feel that they are the driver of the process. However, the possibility of developing a purely financial dependence still exists. To avoid this, one of the companies adopted a method where they do not fully finance a project and community proponents have to look for other sources of funding. Not readily appreciated by the locals; such an approach comes as a step in the right direction not only towards preventing financial dependence but also counteracting the dependency culture.

Contribution to social capital is inextricably linked to the community specifics and is related to the group characteristics of the social environment and utilisation outside the specific area is quite unlikely. Nevertheless, boosting local levels of existing social capital gives independence to the community to utilise it in the future when mining is no longer present.

Boddington is a good example of how a community can define needs at a grass-root level, and industry can contribute to meeting these needs. Being a community characterised with high levels of pre-existing social capital, community members identify this as a key local feature and make efforts to enhance it in a time of transition when the social landscape is seriously challenged and transformed. It is a fact that the presence of mining, and more particularly the presence of a large scale mining operation with its associated negative impacts, undermines the existing social capital. However, industry also provides means that potentially could benefit it. Social capital is a characteristic of the community; it is an attribute that is owned by the community. Therefore it should not be expected that any investments will immediately result in increasing the levels of social capital. It is within the community's capacity once provided with the means to mobilise its resources and utilise the support provided by the industry in order to strengthen it.

In the case of Boddington, there are challenges that the community is currently facing. To be specific, a major issue is how to domesticate and integrate the transiency and make it fit within the local social landscape. The high levels of pre-existing social capital pre-define an active community able to define its own needs in social terms. This is demonstrated through the large number of active community groups. However, there might be other communities, where social capital might not be that strong and in such situations local communities might experience difficulties in identifying local needs and goals. Therefore, identifying the pre-existing levels of social capital and cohesion is of a crucial importance in defining corporate social investment policies and strategies in regards to the social realm. It determines the community's capacity to apply its own mechanisms to respond and cope with changes within the local social landscape. This might also be used as an opportunity indicator for CSI as the community is capacity to define its own needs lies in the core of social sustainability.

Contribution to economic capital

Both companies identify that the most significant contributions to the community is the provision of local employment and the boost to economic development. The community survey demonstrates that these are the areas which receive a large recognition among community members as well. It is evident that people automatically link the employment opportunities that mining creates in the area with increase in population and respectively prosperity for local business development, this should be the general case following any causal analytical thinking. In fact, most SIA reports assume this to become the case. However,

the analysis so far reveals that some of the assumptions about the contribution of mining towards local communities in relation to employment and boost of the local business environment, in this particular case turn out to be a myth rather than a reality.

The provision of local employment has various effects at a local level, depending on where the operation is located. If this creates unquestionably positive effects for an operation based in an area with limited employment opportunities and higher levels of unemployment (such as Africa or South America for example), it evokes completely different issues in the case when mining operations happen in an area with already settled economic conditions and lower levels of unemployment, as is the case in Australia.

The social side effects of abundant employment opportunities in an area with lower or negligible levels of unemployment within the mining and minerals context have been overlooked in the academic literature. As evident through this case study, in such areas the provision of local employment that outnumbers the available working force seems to create more problems for the local community rather than opportunities (see Chapter 6). This phenomenon, typical for the Australian mining reality, shapes the social landscape of many communities neighbouring large-scale or a cluster of mining operations.

The contribution to economic capital through provision of employment and enhancement of the local business environment implemented in the company's policies has a variable effect. It is in general geographically bound; however its impact is multiplied at various levels and locations. It is closely related to the presence of mining in the area and should be used as a means for local development rather than a condition.

Between 2006 and 2011 the population of the Boddington township increased significantly, jumping from 927 in 2006 to 1908 in 2011, which confirms the expectations about population growth. However, the field observations reveal that local retail and hospitality businesses for example are closing down due to lack of available workforce and lack of competition, which drives prices up and in fact makes local shops and services uncompetitive. Locals simply resort to shopping elsewhere, mainly in the regional centres of Mandurah and Perth. Therefore, this challenges the relative relation between employment opportunities, increase of population and local business development linked to areas not related to mining.

The social impacts occurring during the different phases of the mine cycle have also received limited attention in the academic literature. This particular case study demonstrates that the

positive impacts expected to benefit the local community once the mine commences operation are quite variable. The research took a snapshot of the community in a period of change, when the large scale mine was going from a construction into operation phase. The life cycle of a mining operation consists of four phases – exploration, construction, operation and closure. The construction phase of the mine is characterised with large transient workforce, in most of cases employed and managed by contractors. During this period which is normally between 2-5 years depending on the scale of the mine, it is not very likely more permanent residents to move into the community. Once the operational phase commences, the workforce tends to become more permanent, the majority of whom is employed and managed by the mining company. The expectations that mining will bring people to the community was justified, the local population almost doubled within a period of five years. However, the relative relation between population growth and boost of local businesses not related to mining is quite unstable, due to the appropriation of human resources.

The operation phase is the time when it is expected that the associated indirect benefits of the presence of mining will start to emerge and become more evident. However, my observations show that this is not the case for Boddington and the industry presence hardly contributes towards the local economic development of industries not related to mining. It is interesting to note that when I first started going to the community it was in the period of transition from construction to operation. At that time, local businesses were still excited by the big influx of people/customers and the change that local businesses were experiencing – e.g. higher demands for accommodation, busy cafes, shops and restaurants. However, this study reveals that the initial exaltation and the boost effect of the construction phase somehow burned out through the start of the operation phase. Such fact contradicts the general assumption that the operation phase is the phase of maturity, when the community is expected to see most of the benefits coming as a result of mining. This is an inquisitive observation, which needs to be further explored and compared with other case studies. In order to fully enjoy the expected contribution towards the local economic development, the community is facing two fundamental challenges: how to attract free human resources not related to mining and how to build-up its own capacity to capitalise on opportunities.

Still, it might be argued that the provision of employment is not a purposeful contribution towards the local community; it simply follows the presence of mining within the area. Therefore, opportunities and constraints for economic development should be indicated within the impact assessment process, so that the community and other relevant stakeholders are

aware and have time to prepare and mobilise resources in order to capitalise on them. Otherwise as demonstrated through the case study, the lack of awareness and preparedness, along with other previously explained factors, might impede the development process.

Contribution to human capital

Training programs for employees, graduate placements in industry and community grants come to enhance the human capital within the community by building capacity through competence, knowledge, education, skills and experience. This type of practices is led by the company and the impact can be felt at various levels. The capacity built through investments in the human capital can be utilised at various levels, it is in its essence transferable and its further utilisations are not tied with a particular geographical location. However, there might be challenges to keep utilise it locally once mining is gone, as people with related skills and capabilities usually move away from the area following other employment. It might be argued that the human capital created and supported by the mining industry is closely related to the industry's specifics and it is not easily applicable in the general case to other situations, once mining is gone. The low level of other business activities in Boddington would not encourage people to stay and look for alternative opportunities.

Contribution to physical capital

In the Boddington case study, infrastructure investments come mainly through the Royalties for Regions¹⁹ scheme and other local funding bodies, such as Lotterywest. It is within the local government jurisdiction to plan new investments and source funds for their execution. In this case, industry's direct contribution apart from the contribution made through royalties and taxes is also sought. With the construction of the new recreational centre in town, 15% of the investment is expected to be provided by industry. Company representatives play an active role in the facilities planning process, but they act as stakeholders rather than as contributors.

The mining industry provides means for investments in the local physical environment, which are in fact delivered by the government. These types of investments refer to the permanent contribution, as they stay and can be utilised even after the mine life is completed. Building and improving infrastructure are executed in partnership with state, regional and local

¹⁹ Through Royalties for Regions, the equivalent of 25 per cent of the State's mining and onshore petroleum royalties is returned to the State's regions as an additional investment in projects, infrastructure and community services. (Source: <http://www.rdl.wa.gov.au/royalties/Pages/default.aspx>)

government. Investments in infrastructure benefit the community as a whole and also improve the local quality of life by helping the locals to meet common and individual needs.

7. 6. Discussion of findings

Through the Boddington case study, four key areas of the contribution of mining towards sustainable communities related to the forms of social, human, economic and physical capital were identified. In this section I discuss what mechanisms are employed in contributing towards the respective forms of capital, what is the approach, the spread out of the target effect in terms of societal and geographical dispersion and outline the sustainability outcomes. All these aspects of mining industry's contribution towards sustainable communities are summarised in Figure 32.

Social capital has been linked to the process of building, sustaining and enhancing the existing level of social capital. As discussed in the previous section of this chapter, the means and mechanisms to achieve this are envisaged to be mainly sponsorships and community grants oriented towards the qualitative attributes of the social environment. The best approach to implement this is by partnering mainly with local stakeholders, i.e. local governments, community groups and organisations. These types of investments are directly linked to the local community. The results are locally specific and depend strongly on the characteristics of the community as well as on the pre-existing levels of social capital. It is not very likely that the generated capital is utilised outside the specific environment. However, social capital was identified to be a critical criterion for a socially sustainable community, therefore boosting it through community investment strategies allows the community to utilise it beyond the lifespan of the project and benefit from it in the future.

Strengthening community capacity through investments in competences, knowledge, skills and experience adds towards the levels of human capital. This is achieved through training programs for employees, graduate placements in industry and community grants targeting skills development. Such investments are mainly company driven as they in the generally serve the local needs of a particular company related to labour requirements. Unlike the contribution to social capital, which is very locally specific, outcomes from contribution towards human capital have the potential to resonate at local, regional, national and international level. However, this type of capital might face the challenge to be sustained and utilised further at a local level once mining is gone. This applies particularly in areas where there is a single resource operation and not as much in areas with long-term resource potential.

Contribution to economic capital is in general associated with provision of employment and boosting the local business environment. This type of capital falls with the functioning attributes of the social environment directly linked to the well-being and quality of life criterion. It is geographically bound however, its impact is multiplied at various levels and locations. From a local community perspective, the development and enhancement of economic capital is closely related to the presence and operation of mining in the area, as the industry is used as a mean for future development. On the other hand, as demonstrated in Chapter 6, the potential for creating and enhancing economic capital for local business development at a community level is not always fully utilised. This on its own limits the direct benefits to the local community related to the functioning attributes of the local environment and thus challenges sustainability outcomes. Contribution to economic capital is often seen as a company-led strategy and somehow local communities, as evident through this particular case study, are not acting as equal partners. However, the cash invested locally is not enough for enhancing economic capital and maximising the benefits from mining. This requires a more complex strategy, based on partnership between the key stakeholders – community, industry and government, in which the presence of mining is used as a mean for development and not as a condition. The case study demonstrated that the enhancement of this type of capital cannot be successful unless the process employs a partnership-based approach and the community takes an equal responsibility and commitment to contribute towards it.

Physical capital is mainly influenced by building and improving infrastructure, which is mainly done through the royalties and taxes paid by industry and executed by government. This type of capital is closely related to the geographical location of the operation. It provides means to improve quality of life and meet common and individual needs, which in return contributes to the enhancement of social and human capital in their broader sense.

As demonstrated, the presence of mining unquestionably contributes to sustainable communities, however in order to maximise the benefits for the local community, the contribution should be assessed against the impacts it generates within the local social context. Such assessment should be part of the on-going SIA process and should take into consideration softer social impact indicators (as identified in Chapter 6) specific for the characteristics of the local environment.

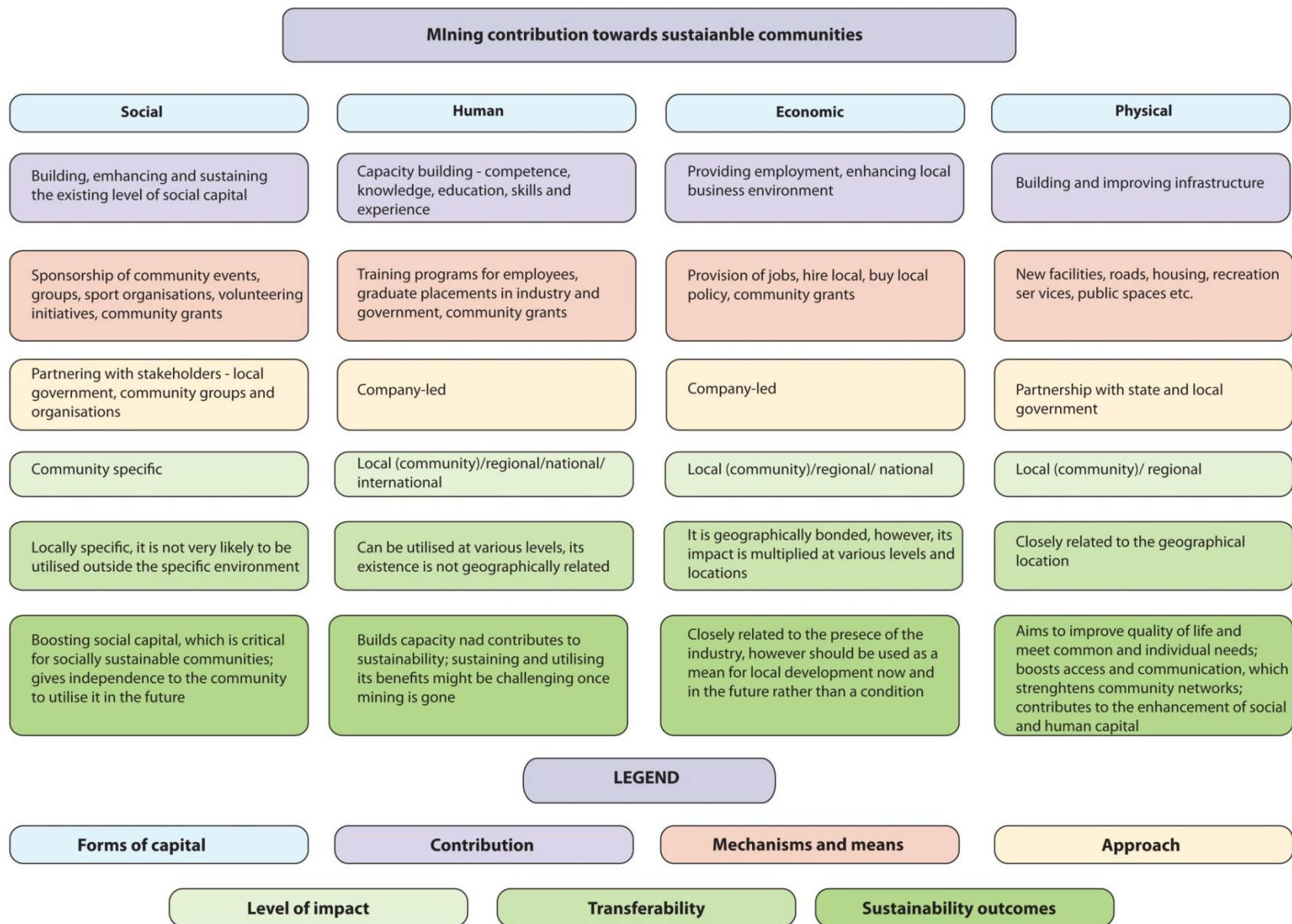
7.7. Conclusion

This chapter analysed the role of mining for sustainability by examining the contribution of mining to the local community and assessing its social implications. Reflecting on

information from interviews and secondary data sources, the discussion reveals that the industry's contribution to the local community may have both positive and negative implications. It was argued that the investments in social capital are critical for community social sustainability. Even though the presence of mining provides grounds for social capital deterioration, it also provides means for it to be boosted. As social capital is a specific qualitative community characteristic, it cannot be expected that the contribution the industry makes would immediately result in its increase. The latter depends on the community's capacity to utilise the means and opportunities created by mining and turn them into effective social attributes. It was also revealed that the taken for granted positive relationship between large employment opportunities, population increase and prosperity of the local business not related to mining is not directly causal. On the contrary, the large demands by the mining operations in this case study have overwhelmed community initiative.

Furthermore, it was demonstrated that it cannot be expected that any contribution made or claimed by the industry will automatically bring results in the particular area of contribution. The implications also depend on the community's characteristics and capacity to capitalise on opportunities and utilise the resources that have been provided with the social capital it possesses.

Figure 32. Mining contribution towards sustainable communities



CHAPTER EIGHT – Conclusion

8. 1. Introduction

In this thesis I sought to explore how contemporary mining operations impact on a local community and how this relates to communities long-term development using the standing point of the social sustainability concept. The inquiry was instigated by the fact that with the depletion of easily accessible resources, mining activities, particularly in the Australian reality, are more likely to appear in more complex environments, including closer to already established communities traditionally engaged with industries other than mining. Such communities are quite unusual for Western Australia, as the majority of the contemporary mining towns have been established and developed around the availability of natural resources. Even though studies of the social impacts of mining are not a new area of research, a new way of looking at how impacts occur and evolve is required. Two main reasons for that were identified at the beginning of this study – (1) the change in the development paradigm moving the focus from the ‘problems of the day’ towards a sustainable future and (2) the following transition of the mining and minerals industry towards sustainability. These two conceptual changes resonated in the way mining acts within the host communities and respectively in the way communities respond to that. As the thesis deals with the social aspects of mining operations, social sustainability was used as a primary thread throughout the study.

The research focused on a rural community in Western Australia and employed the methods of an exploratory study in order to answer the two main questions of the inquiry as outlined in Chapter 1:

- 1) What are the social impacts and transformations triggered by mining activities at a local community level?
- 2) What is the role of mining for social sustainability?

In order to respond to the main research questions the thesis set the following objectives:

- To explore the complexities and the drivers generating the social impacts of mining within a Western Australian case study;
- To analyse the role of mining for social sustainability and understand the impact of mining in regards to long-term community development;

- To outline and provide understandings about the possible relations between social impacts and social sustainability in a mining context.

In addressing these objectives the thesis developed its own theoretical framework, as in the existing academic literature theories about social impacts of mining and social sustainability have not been linked so far. First, the emergence and development of the field of social impact assessment as a key theoretical and methodological tool for studying social impacts of resource developments (Chapter 2) was discussed. This part of the research demonstrated the exploratory nature of SIA studies and brought forward the complex dimensions and manifestations of social impacts. Being defined as a multi-dimensional concept, social sustainability was interpreted as an attempt to define the social goals of sustainable development, while focusing on the dynamic process of societal changes (Chapter 3). Social capital and corporate social responsibility were identified as key methodological references for exploring the subject matter from the stand of the SIA theoretical framework and the mining - community relation. The thesis demonstrated the links of these concepts (i.e. social capital and CSR) to the fundamentals of social sustainability. This led to the proposed methodology (Chapter 4) that adopted an interpretivist research philosophy and aimed to provide a better understanding about a real life phenomenon by asking the core question ‘what is going on there’. A mixed method research strategy was developed to guarantee equal representativeness of the various stakeholders and to reduce the subjectiveness of the study.

Once the theoretical framework and the methodological approach were developed, the thesis moved to its practical part and linked the outlined concepts of social sustainability, social capital and corporate social responsibility to the particular case study – Boddington, Western Australia (Chapters 5, 6 and 7). First, I introduced the case study and its specifics (Chapter 5) and then I presented the discussion on the social impacts of mining experienced by the local community (Chapter 6). The thesis then examined the contribution mining makes to the local community and the implications it has on the local social landscape (Chapter 7).

8. 2. Bringing it all together - key findings of the thesis

Social impacts of mining

The first research question the thesis asked was: ‘What are the social impacts and transformations triggered by mining activities at a local community level?’ The findings of this research demonstrated the complex nature of the social impacts caused by mining operations and unveiled inextricable links between the drivers that generate them. In reality, no new indicative social impacts of mining have been identified. However, the research demonstrated that social impacts should not be treated as a set of separate constant indicators. Attention should be instead paid to the dynamic interactions between the various indicators. The analysis of the complex combination of impacts occurring within the local social landscape revealed the existence of three very important phenomena that are challenging the sustainable future of the local community. These are: (1) appropriation of human resources, (2) transiency and (3) dependency culture/mentality.

The **appropriation of human resources** emerges in the case when large scale mining operations are located in areas with a limited free labour force and lower levels of unemployment, such as Boddington. The workforce that such operation requires exceeds in magnitude of times not only the available free labour force in the area, moreover it exceeds in times the size of the local community. The higher wages and benefits offered by the mining industry make it a preferred employer in the area. In addition to that, the mining commitment to hire locally, seriously challenges the competitiveness of other sectors, not related to mining, in attracting and retaining employees. The study demonstrated that the rapid increase of local population with people coming to the area because of mining does not in fact contribute to the creation of available human resources, as those simply follow mining jobs. This was identified as a factor that impedes further community development and capitalisation on the available opportunities created by the presence of mining. Appropriation of human resources was determined as an important factor challenging the functioning attributes of the local environment related to the well-being and quality of life social sustainability criteria.

Transiency is a function of three other interrelated phenomena – the nature of the mining industry, population mobility and transient workforce. The location of mining operations and their lifecycle pre-determine the high geographic mobility of industry employees. However, the study differentiated between mobile workforce and transient workforce. Transient

workforce was associated with the existing mining camp and the rostered work patterns typical for mining. A major characteristic of the transient workforce is that it does not engage with the local community and its sense of place. The popular practice within the industry to build temporary mining camps around already existing communities and encouraging FIFO and DIDO practices brings a large size of transient population. These people were not believed to be part of the local community, as they do not take part in the local community life. Through the Boddington case study, transiency was identified as a factor impacting on the normal functioning of the local social landscape by causing (1) disbalance within the population structure and (2) contributing to devaluated levels of social capital and cohesion.

Dependency culture/mentality is associated with higher community expectations about the contribution of mining to the local community. This includes corporate social investments and delivery of service and infrastructure. The Boddington case study shows that community members expect more from industry rather than government to improve their life. This is related to the image the industry is promotes as a factor of development. The study isolates the emergence of mentality within the local community members that the industry always owes them something as a price for exploring the natural resources. Such expectations related to local economic and community development may be resulting in community's initiative being impeded and may prevent the community from taking ownership of their own future.

The combination of the three key phenomena, additional to the widely discussed within the academic literature infrastructure and service provision constraints faced by local communities hosting large-scale mining, were outlined as key factors impacting on community social sustainability and challenging the development paths it takes.

Social capital and social cohesion

While developing the theoretical framework for this research, social capital and the related concepts of social cohesion and trust were identified as key methodological approaches to the study of social sustainability. The thesis undertook an assessment of local community levels of social capital and social cohesion by using four key indicators – i.e. trust, social organisation and participation, community groups and voluntary work done within the community. Social capital and social cohesion were identified as important qualitative attributes of the local environment contributing to the utilisation of the existing opportunities. The findings shed light on the implications a large scale mining operation has on them. It became evident that the rapid demographic changes and population dynamics along with the

employment patterns imposed by industry caused deterioration in the community's level of trust, social mixing, participation in local community life and voluntarism, which were originally determined as high in comparison to other WA mining communities. Changes in the levels of social capital and social cohesion were seen as sources most likely to provoke qualitative societal change, which might influence community's character and coping mechanisms. It was also demonstrated that a certain level of pre-existing social capital and strong community self-organisation may employ grass-root initiatives to compensate deficits in service provision.

Contribution of mining to a socially sustainable community

The second research question this inquiry aimed to answer was: 'What is the role of mining for social sustainability?'. The role of mining for social sustainability was explored by analysing its contribution to the local community and weighing it against the social implications it evokes. The findings suggested that the implications of the contribution mining makes at a local level are a function of (1) the pre-existing levels of social capital and (2) the characteristics of the host environment. Four main areas of contribution claimed by industry and related to the various types of capital were identified – i.e. social, economic, human and physical.

The research identified the results from investments in social capital to be dependent on (1) the characteristics of the local social environment, (2) the pre-existing levels of social capital and (3) community's capacity to utilise the support provided by the mining industry. It was also recommended the levels of social capital to be used as an opportunity indicator for corporate social investments.

The widely promoted contribution of mining to economic capital was criticised within the Boddington case study for its indirect implications, namely the appropriation of human resources. By unveiling the constraints that businesses in the area not related to mining faced, the study also challenged the relative relation between population growth, employment opportunities and boost to the local businesses environment. It was recommended that such impacts have to be considered in assessment studies as these are real factors impeding development.

Contribution to human capital within the research area was identified to serve primarily industry needs, however it is the most flexible type of capital as it might be transferred and

utilise at various levels and locations. On the other hand, it was reconfirmed that investments in physical capital, which represents the permanent contribution mining makes, help the local community to improve their quality of life and meet common and individual needs.

8.3. Implications for future research

The findings in this thesis were presented through exploring a single case study, which raised more questions rather than providing answers and solutions. Even though the research shed light on the drivers and complexities generating social impacts from mining operations at a local community level, a single case study does not provide the means to definitely confirm theories and hypotheses. The study gained insights on local dynamics and transformations and in fact each of the key findings presented earlier could potentially form an independent research stream for the future.

That said, a better understanding of the constituents and the nature of the transiency phenomenon would contribute to improved CSR policies and practices and moreover benefit the planning process for local future development. This could involve for example qualitative examination of indicative aspects which can further be tested quantitatively within different social settings.

Further testing applies also for the identified dependency mentality and how it relates to social sustainability. This might be a hypothesis difficult to prove as it is rather intangible and hard to measure, but untangling it would potentially challenge the conventional practices towards development employed by both industry and government.

The appropriation of human resources and the evoked questioning about the relation between population growth, abundant employment opportunities and the prosperity of the local business environment also need to be further researched both qualitatively and quantitatively, they need to be compared with other case studies, not only in Australia.

The findings of the study did not only provide ground for further academic research. Insights of this study can be taken into consideration and used on a practical level, for example to develop indicators for measuring the contribution of mining as of what are the results not what the inputs are, as is currently the situation. Even though these are seen to be rather subjective and hard to be quantified, such considerations will guarantee that the community stand and the real implications of the industry's contribution are reflected. Further,

developing a model for incorporating social capital indicators and considering impacts of complex phenomena within Social Impact and Opportunity Assessments and community development toolkits would definitely contribute to better results from corporate social policies.

In our contemporary world, it is difficult to solve the puzzle of the social impacts associated with mining. This thesis did not provide a silver bullet but developed a strong argument as to what the approach should be to understand the puzzle. The existing social impact assessment methodologies aim at identifying and describing its elements but what creates the bigger picture are the interactions, flows and attitudes within the community triggered by mining. Transiency, dependency culture and labour force appropriation rarely exist on their own within established communities, but have become defining features in the Boddington case study. The lessons from this case study not only represent a call for further research but also for change in practices as to how we deal with the social impacts of mining.

Thus the thesis tried to put the puzzle of the social impacts occurring as a result of mining together. It did not solve the problems of the field but proposed a way of understanding social impacts. Identifying the social impacts of mining through the various existing tools gives us the pieces of the puzzle, and understanding the interactions between the separate indicators gives us the bigger picture.

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APPENDICES

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APPENDIX 1 – COMMUNITY SURVEY QUESTIONNAIRE

Community survey QUESTIONNAIRE

Hereby, I declare that I have read and agreed with the following:

- I agree to take part in this research.
- I have read the Information Sheet about the nature of this survey and any questions I have about the research process have been answered to my satisfaction.
- I am aware that this survey is anonymous and no personal information will be obtained other than general demographic information.
- I know that I may change my mind and withdraw my consent to participate at any time during the interviewing process.
- I acknowledge that once my survey has been submitted it may not be possible to withdraw my data.
- I understand that all information provided is treated as confidential by the researchers and will not be released to a third party unless required to do so by law.
- The results from the survey will be presented only as general conclusions and will be used only for the purposes of this particular research.
- I understand that the findings of this study may be published and that no information which can specifically identify me will be published.

Please indicate your agreement/disagreement by ticking the appropriate box.

Agree

Disagree

1. DO YOU RESIDE IN BODDINGTON?

Please, circle one answer only

1 Yes

2 No (Please, specify where you reside

2. IN YOUR OPINION, HOW DO **GLOBAL PROCESSES AND GLOBALIZATION** ON ONE HAND AND **MINING ACTIVITIES** ON THE OTHER, AFFECT EACH OF THE FOLLOWING ASPECTS OF LIFE IN YOUR COMMUNITY?

Please, circle two answers for each row using the scale provided. One answer for Global processes and Globalization and one answer for Mining activities in the area.

- 1 Completely positively
- 2 Fairly positively
- 3 No impact
- 4 Fairly negatively
- 5 Completely negatively

Global processes (such as the global financial crisis, media and internet, international trade, migration trends, foreign investments etc.) **and globalization**

Mining activities in the area

2A	Local culture	1	2	3	4	5	1	2	3	4	5
2B	Family life	1	2	3	4	5	1	2	3	4	5
2C	Employment in the area	1	2	3	4	5	1	2	3	4	5
2D	Local community values	1	2	3	4	5	1	2	3	4	5
2E	Economic activities in the area	1	2	3	4	5	1	2	3	4	5
2F	Sustainable development of the area	1	2	3	4	5	1	2	3	4	5

3. DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT:

"PEOPLE IN MY COMMUNITY LOOK OUT MAINLY FOR THE WELFARE OF THEIR OWN FAMILIES AND THEY ARE NOT MUCH CONCERNED WITH COMMUNITY WELL-BEING."

Please, circle one answer only

1 Strongly agree

2 Agree

3 Neither agree nor disagree

4 Disagree



5 Strongly disagree

4. SINCE MINING LAST COMMENCED OPERATION, DO YOU THINK PEOPLE **IN YOUR COMMUNITY** ARE:

		Yes	No
A.	More socially organized	1	2
B.	More likely to participate in community life	1	2
C.	More likely to participate in decision making processes	1	2
D.	More concerned about quality of life (living conditions) in the area	1	2
E.	More capable to stand up for their rights	1	2
F.	More sensitive about the environment	1	2
G.	Other: <i>Please specify</i>		

5. TO WHAT EXTENT DO MEMBERS OF YOUR COMMUNITY RELY ON **MINING** AND ON **GOVERNMENT**, FOR EACH OF THE FOLLOWING:
 PLEASE, INDICATE BY USING THE SCALE FROM 1 TO 5, WHERE 1 MEANS "NOT AT ALL, AND 5 – "VERY MUCH"

Please, circle two answers for each row using the scale provided. One answer for Mining and one answer for Government.

		Rely on MINING					Rely on GOVERNMENT				
		Not at all		Very much			Not at all		Very much		
											
A.	Improving the provision and access to social services and facilities	1	2	3	4	5	1	2	3	4	5
B.	Improvements in infrastructure	1	2	3	4	5	1	2	3	4	5
C.	Supporting community events and initiatives	1	2	3	4	5	1	2	3	4	5
D.	Contributing to community development	1	2	3	4	5	1	2	3	4	5
E.	Taking care of cultural and natural heritage	1	2	3	4	5	1	2	3	4	5
F.	Provision of jobs in the area	1	2	3	4	5	1	2	3	4	5
G.	Contributing to the economic diversification in the region	1	2	3	4	5	1	2	3	4	5
H.	Initiating and supporting sustainability in the region	1	2	3	4	5	1	2	3	4	5

6. CAN YOU PLEASE LIST THREE POSITIVE AND THREE NEGATIVE IMPACTS OF MINING			
	A. Positive		B. Negative
1		1	
2		2	
3		3	

7. WHAT DO YOU THINK, THE CONTRIBUTION OF MINING, FOR THE LOCAL COMMUNITY AND THE REGION IS? PLEASE, EXPLAIN.	
A. Community	B. Region

8. HAVE YOU PERSONALLY OR YOUR FAMILY EXPERIENCED ANY HARMS OR NEGATIVE IMPACTS FROM MINING?

1 Yes (*please specify*
.....
.....)

2 No

9. IMAGINE MINING SEIZES FOR AN UNDEFINED PERIOD OF TIME, WHAT WOULD YOU PERSONALLY DO?

Please, circle as many answers as relevant

A.	Move out of the area to follow other employment opportunities	1
B.	Keep living in the area and looking for employment opportunities in the area	1
C.	Try to establish my own business in the area	1
D.	Keep my property and move somewhere else	1
E.	Sell my property	1
F.	Other: <i>Please specify</i>	

10. WHAT DO YOU THINK OTHER COMMUNITY MEMBERS WILL DO, IF MINING STOPS?

Please, explain

.....
.....

11. HAVE YOU EVER THOUGHT OF ANY ENTREPRENEURIAL ACTIVITIES, WHICH YOU WOULD LIKE TO PURSUE IN THE AREA?

- 1 Yes, and I already have a business
- 2 Yes, but I haven't started any activities yet
- 3 No

Go to question 14

Go to question 12

Go to question 15

12. WHAT STOPS YOU FROM DOING IT? WHY AREN'T YOU DOING IT ?

Please, explain

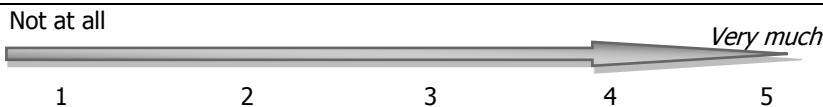
.....
.....

13. IF YOU DECIDE TO CARRY OUT THESE ACTIVITIES NOW TO WHAT EXTENT WILL THE SUCCESSFUL OUTCOMES BE DEPENDENT ON THE PRESENCE OF MINING? PLEASE, INDICATE BY USING THE SCALE FROM 1 TO 5, WHERE 1 MEANS "NOT AT ALL", AND 5 - "VERY MUCH"



GO TO QUESTION 15

14. TO WHAT EXTENT DOES THE PROSPERITY OF YOUR CURRENT BUSINESS DEPEND ON THE PRESENCE OF MINING IN THE REGION? PLEASE, INDICATE BY USING THE SCALE FROM 1 TO 5, WHERE 1 MEANS "NOT AT ALL", AND 5 - "VERY MUCH"



15. SINCE MINING LAST COMMENCED OPERATION, HAS THE **LEVEL OF TRUST** AMONG MEMBERS IN YOUR COMMUNITY IMPROVED, WORSENERD, OR STAYED THE SAME?

- Improved 1
- Worsened 2
- Remained the same 3

16. CONSIDERING THE PRESENCE OF MINING OPERATIONS IN THE AREA, IS THIS COMMUNITY A GOOD PLACE TO RAISE CHILDREN?

- Yes 1
- No 2
- Indifferent 3

4 \$75,000 - \$99,999

D9. Do YOU OWN A RESIDENTIAL PROPERTY IN BODDINGTON?

1 Yes

2 No

D10. Do YOU OWN AN AGRICULTURAL ESTATE IN BODDINGTON?

1 Yes

2 No

D11. Do YOU OWN AN INDUSTRIAL PROPERTY IN BODDINGTON?

1 Yes

2 No

Please, feel free to share anything in regards to the social impact of mining in the area that was not covered in the questionnaire and is very important to you.

.....
.....
.....
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Thank you very much for your time! Your help is highly appreciated!

APPENDIX 2 - INFORMATION SHEETS

Information sheet for general community

My name is Svetla Petrova and I am currently doing a research study for my PhD degree at Curtin University of Technology. The title of my research project is *Mining and social sustainability – understanding social impacts, changes and transformations at community level as a result of mining activities through the social sustainability concept.*

My research interest is oriented towards the **social impacts of mining**. For my project I am investigating two local communities in two mining sites, one in Western Australia (where mining has played a central part in development) and one in Bulgaria (a former Soviet Block country and current member of the European Union, where mining has been encouraged as a way of industrialization). I am interested in finding out **what are the social transformations appearing at a community level as a result of mining activities.** I would like to find out more about your perceptions, views and understandings on what the social impacts of mining are. I would like to ask you various questions about your life and experience in a community impacted by a mining operation. The interview process will take approximately 45 minutes. All the questions will be read to you and your answers will be registered by the interviewer.

Consent: **Your involvement in this research is entirely voluntary.** You will be given the opportunity to see the questions beforehand and decide whether you want to participate in the interview. When you have tick the AGREE box on the first page of the questionnaire I will assume that you have agreed to participate and allow me to use the information provided for this particular research. However, you have the right to withdraw at any stage during the interview process without having to give a reason and without it affecting your rights or my responsibilities.

Confidentiality: **The interview is anonymous,** no personal information will be obtained other than the general demographics. The results from the survey will be presented only as general conclusions and will be used only for the purposes of this particular research. In adherence to university policy, the questionnaires will be kept in a locked cabinet for seven years and after that they will be destroyed.

Further information: This research has been reviewed and given approval by Curtin University of Technology Human Research Ethics Committee (Approval number HR 128/2009). If you would like further information about the study, please feel free to contact me on 0410714716 or by email: svetla.petrova@postgrad.curtin.edu.au . Alternatively, you can contact my supervisor Prof. Dora Marinova on +61 8 9266 9033 or d.marinova@curtin.edu.au.

Thank you very much for your involvement in this research, your participation is greatly appreciated!

Please, keep this letter for your information.

Information sheet for company representatives, local government representatives, opinion leaders and key public figures, trade-union representatives.

My name is Svetla Petrova and I am currently doing a research study for my PhD degree at Curtin University of Technology. The title of my research project is *Mining and social sustainability – understanding social impacts, changes and transformations at community level as a result of mining activities through the social sustainability concept.*

My research interest is oriented towards the **social impacts of mining**. For my project I am investigating two local communities in two mining sites, one in Western Australia (where mining has played a central part in development) and one in Bulgaria (a former Soviet Block country and current member of the European Union, where mining has been encouraged as a way of industrialization). I am interested in finding out **what are the social transformations appearing at a community level as a result of mining activities**. I would like to find out more about your practical experience, views and understandings on what the social impacts of mining are. I would like to ask you various questions in your capacity of a professional or representative of your institution/organisation, about your experience in a community impacted by a mining operation.

The interview process will take approximately one hour. You will be given the opportunity to see the questions beforehand and decide whether you want to participate in the interview. I will also need your permission to record our conversation. After the records are transcribed, I will show you a copy of the interview to check and make sure it is accurate or to make changes.

Consent: **Your involvement in this research is entirely voluntary**. When you have signed the consent form I will assume that you have agreed to participate and allow me to use the information provided for this particular research. However, you have the right to withdraw at any stage during the interview process without having to give a reason.

Confidentiality: Your privacy is greatly respected and any information that could identify you will be removed and all tapes will be erased. The interviewer has signed a confidentiality form and cannot share information about you with any person. All information will be stored confidentially with a code at Curtin University of Technology for 7 years. After this time the information will be destroyed.

Further information: This research has been reviewed and given approval by Curtin University of Technology Human Research Ethics Committee (Approval number xxxxx). If you would like further information about the study, please feel free to contact me on 0410714716 or by email: svetla.petrova@postgrad.curtin.edu.au . Alternatively, you can contact my supervisor Prof. Dora Marinova on +61 8 9266 9033 or d.marinova@curtin.edu.au.

Thank you very much for your involvement in this research, your participation is greatly appreciated!

Please, keep this letter for your information.

APPENDIX 3 – INTERVIEWS INDICATIVE QUESTIONS

Example of interview guide (in-depth interviews with company representatives, local government representatives, opinion leaders and key public figures, trade-union representatives)

1. Introduction:

- The main purpose of the interview is to find out what are the social transformations appearing at a community level as a result of mining activities. I would like to find out more about your practical experience, views and understandings on what the social impacts of mining are. I would like to ask you various questions in your capacity of a professional or representative of your institution/organisation, about your experience in a community impacted by a mining operation;
- Approximate length – 1 – 1.5 hours;
- Participants consent:
 - Remind the participant that he/she can ask for clarification at any time;
 - Remind that the conversation is recorded and ask for a permission to record;
- Start the interview.

2. Interview:

1. Can you please tell me something about the place you live/work in? What do you like and/or do not like about it?
2. What can you tell me about the mining activities in the region?
3. As a professional or representative of your organisation, in what particular aspects do these activities influence/impact the local community? Are there any positive and/or negative implications? Please, give examples.
4. How do community members respond to social change (processes by which alternation occurs in the structure and function of a social system)? (What are the community responses to those social changes?) Please, describe or give examples.
5. How does the community as a whole cope with those changes; what are the adaptation mechanisms?

6. Do you know how the community responded previously to those or similar changes?
7. In your opinion, how does the presence of a mining operation in the region changes the community nature, environment, dynamics etc, e.g. how people live, work and interact together on a day-to-day basis; how people get organised; are people more socially active and organised etc.
8. How do you think the presence of a mining operation in the region influences the community's political system, e.g. the extend and motivation to which people are able to participate in decisions that affect their lives; are there any voluntary associations and interest groups activities; are people more responsible for their future than before etc.
9. Recently, companies started to acknowledge that a substantial cultural shift is needed in order to enhance the contribution the mining sector can make to human and environmental well-being. During the last few years, the industry started to approach social issues in a value and contribution based manner, rather than focusing on "mitigation of the adverse effects". How would you comment on this, what is the situation in your community/region?
10. What are you (as professional or representative of your organisation) and in particular, your organisation doing in order to contribute to the community's sustainable development/well-being? Describe activities performed by your organisation that relate to community well-being. What actions are taken in order to support the local community to adjust to changes and future implications triggered by mining activities in the region?
11. Do you collaborate with other stakeholders in regards to future community development? How?
12. What future plans do you have to interact with industry/local community/public leaders/trade unions outside your organisation in relation to community well-being?
13. How do you think the presence of a mining operation will influence the development perspectives of the region? Please, give examples.
14. Do you want to share anything we didn't cover in our conversation?

Thank you very much for your time and contribution!