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What a social license to operate means for global mining companies

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What a Social Licence to Operate means for global mining companies

A research paper submitted by:

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A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

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ABSTRACT

A social licence to operate (SLO) is granted to companies by the local community and stakeholders. An SLO cannot be self-awarded, there are certain steps that a company needs to have in place to obtain the approval of the local community. The key is for companies to acknowledge that their operations play a significant role in society and they can promote social development. An SLO is a concept that has widely gained momentum within the mining sector and can be used to promote social development.

The research focussed on the International Council on Mining & Metals (ICMM) member companies and their reference to the SLO and the ten principles of the ICMM. The research paper may provide guidance for all mining companies in improving their social impact on local communities. The research methodology that was used, was based on a qualitative cross-sectional content research design which used the ICMM member companies annual integrated and sustainability reports over a five-year period.

The research found that all the ICMM companies acknowledged the importance of their relationship with the local communities and provided further information on how they engage with their local communities. There was also definitive link between the ICMM ten principles and obtaining an SLO. The mining sector plays a significant role in the economy, providing essential minerals and improving society development. The research demonstrated the importance of relationships between a mining company and the local community. Providing benefits to the community can provide positive returns for companies and obtaining an SLO is crucial to achieve this.

Mining companies can have a great impact on social development and provide many benefits to local communities and stakeholders which are aligned to the United Nations Sustainable Development Goal's. The key is to ensure that the relationship between the company and the community is filled with respect, credibility and all interests are aligned.

DECLARATION

I, Neil Winspear, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.



Neil Winspear

Signed at Foreshore, Cape Town.

On the 3rd day of September 2018

DEDICATION

This research paper is dedicated to my late mother, Pauline Winspear, my wife Melanie Winspear and our son Liam Winspear.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank Douglas Taylor, my supervisor without whose knowledge this paper would have been an unachievable dream. Thank you for your guidance and support during this time, it is much appreciated.

The MBA program has been a rollercoaster of a ride and I have gone through many ups and downs on a personal level. My mother sadly past away in my first year of the course, just a month before my wedding. She was always there to support me and played a significant role in me being able undertake the MBA course. I know she would be extremely proud of what I have accomplished and know that she would be so happy knowing that I have accomplished my dream of passing the MBA course. The second and final year of the MBA course brought into my life my greatest joy, my son Liam. I can look back and laugh at changing nappies late into the night while finishing off assignments or studying for exams.

Finally, I would like to thank my wife Melanie Winspear for continuously supporting me during the MBA course. I know it wasn't easy on you with me working after hours, but having your support and love pushed me through. I cannot thank you enough for this and know that I love you so much and I am eternally indebted to you.

Thank you

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the research

The purpose of the research was to investigate the consideration and requirements of a Social Licence to Operate (SLO) within the mining sector, specifically referring to International Council on Mining & Metals (ICMM) member companies. The research focused on the level and integration of SLOs within each of the company's operations, using annual financial and sustainability reports for each company. The research further identified how the ICMM member companies refer to the ICMM ten principles and comply with the requirements of each principle.

Mining companies are encouraged to consider the top interests of the local communities and stakeholders, regarding the impact of their operations, before, during and after a project has been completed. In South Africa, for example the government recognises that mining companies need to involve the local communities and stakeholders in their decisions during the initial phases of the mining application for the relevant mining rights and permits. This involves early engagement between the mining company and the local communities that will be affected by the mining operations (Department of Mineral Resources, 2011). It is with the latter requirement that the idea of an SLO was born and has now become an instrument to obtain approval and acceptance from the local communities and stakeholders. An SLO can also be aligned with a company's corporate social responsibility (CSR) initiatives, which provides a positive impact on the society (Baker, 2003).

There are many risks that companies in the mining sector encounter through their operations. (Ernst and Young, 2016) p1. published the top 10 business risks facing mining and metals, 2016–2017. The list of risks identified are:

1. Cash optimization;
2. Capital access;
3. Productivity;
4. Social Licence to Operate;

5. Transparency;
6. Switch to growth;
7. Access to energy;
8. Joint ventures;
9. Cybersecurity;
10. Innovation.

With regards to this research, risks 4 and 5 are directly related to the problem statement and research questions. Therefore, it is important for mining companies to obtain community and stakeholder approval, or else mining operations can be brought to a halt, profits lost, and possible project closure can occur. Mining companies are therefore required to make the required steps to ensure that the risk of rejection from the local communities and stakeholders is mitigated and that they are transparent throughout their operations (Ernst and Young, 2016). The ICMM provides guidance for companies to mitigate these key risks in the mining sector and assist in gaining community approval to conduct their mining operations (International Council on Mining & Metals, 2017).

1.2 Context of the research

The mining sector plays a significant role on the economic development for many countries across the globe. The sector attracts foreign direct investment (FDI) into the countries and assists in transforming companies into global enterprises. Other ways that the sector contributes to the economy is through job creation, upskilling of labour force, contribution of corporate tax and an increase in the support services to the mining companies (Thomson & Boutilier, 2011). On the 25th of September 2015, the United Nations Development Programme (UNDP) launched the Sustainable Development Goals (SDGs) to address the global need to end poverty, protect the planet and ensure that all individuals live in peace and prosperity. In total there are seventeen goals which have been built on the successes of the Millennium Development Goals, while including the risks of climate change, economic inequality, innovation, and sustainable consumption. The seventeen goals are interconnected and tackling one goal may lead to another goal being achieved. The goals form part of the agenda for 2030 and

seek to challenge the root causes behind poverty and unite the world to make provide a positive change for both the people and planet (United Nations Development Programme, 2018). The mining sector has the potential become one of the leading contributors in achieving the SDGs. Mining operations can generate profits, employment opportunities and economic growth in all countries (Sonesson, 2015).

As mentioned above, there are many benefits that demonstrate the importance of the mining sector, however the sector has had several critical risks associated with it. One of the most substantial examples of risks to the mining sector is the Marikana mining conflict that occurred in South Africa during 2012. The incident occurred when mine workers at the Marikana mine (owned by Lonmin), began a wildcat strike for pay increases. Clashes broke out between the National Union of Mineworkers (NUM), who did not support the strike and a breakaway Association of Mineworkers and Construction Union (AMCU), who supported the strike. Police were deployed to respond to the inter-union clashes after ten people were killed (two were police officers). Police then opened fire on the striking miners, some of whom were armed, and killed thirty-four, injured seventy-eight and arrested two hundred and seventy miners (News24, 2012).

The above is an example of the many environmental, social and governance (ESG) risks that companies in the mining sector encounter. Others include:

- Environmental: Impact on water resources; drainage; leaching; soil erosion; biodiversity loss; mine pollution; tailings; spills; mine dewatering; air quality; noise; vibration; climate change considerations; ecosystem collapse; and hazardous waste.
- Social: Human displacement; resettlement; impacts of migration; impacts on livelihoods; impacts on public health; security measures; health; safety; employee turnover; social instability; labour relations, compensation; benefits; and fair labour practices.
- Governance: Reputational damage; infrastructure; regional development; policy support; legal system development; land acquisition; mineral resource management; mine safety; environmental measures for mines; bribery; corruption; political influence; and transparency.

(CDCGroup, 2015).

Mining companies are therefore required to reduce the above ESG risks through their own operations and ensure they take into consideration the local community and stakeholders interests. These issues, if not mitigated, can have an indirect or direct effect on the company's operations, with stakeholders bringing mining operations to a halt or severely impacting activities.

One of the key mitigating tools that a mining company can put in place is procuring a Social Licence to Operate (SLO). Not having an SLO in place can provide an opportunity for local communities to halt mining operations, along with the support of the government (Boutilier, Black, & Thompson, 2012). Due to the mining sector being dependant on land providing a source of mineral resources, companies' operations can be located near where local communities and inhabitants live. This is where obtaining an SLO provides an indication of support from the local communities and stakeholders to conduct their operations. If a mining company does not engage with the communities and does not obtain approval for the SLO, then it can lead to an increase in operation stoppages, confrontations, and project cancelations. (Pike, 2012).

In the mining sector an international organisation has been established, that promotes a safe, fair, and sustainable mining, and provides guidance to improve the contribution of mining to society. This is the International Council on Mining & Metals (ICMM). There are currently twenty-five companies that have an ICMM membership. To become a member companies are required to commit and adhere to the ten principles that the ICMM have designed for the mining sector. These principles were first established in 2003, and later updated in 2015. The goal of the ICMM is for its members to have positive and constructive relationships with their local communities, which it believes can be created through active engagement, trust, respect and an agreement that provides mutual benefits for both the company and local community (International Council on Mining & Metals, 2017).

Over the years, there have been several models that aim to assist companies in improving their social impact. Examples include: the pyramid model; the three-

strand model; and the triangle model. The model that was used in this research paper was the pyramid model of Boutilier & Thomson (2011). This provided further analysis into the research topic and assisted in drawing summaries and recommendations. The model has three main levels (refer Fig 1):

- Legitimacy: Projects that are accepted by stakeholders through engagement and being transparent. Both the company and the stakeholder's best interests are taken into consideration.
- Credibility: Projects that are accepted have defined roles and responsibilities assigned to both the company and the stakeholders. Experience and previous results provide a company with credibility that provide stakeholder approval.
- Trust: Projects that are accepted have a sense of co-ownership and is built on sound relationships which involve proactive engagement and community collaborations. Transparency and disclosure between the company and the local community is important to establish trust.

(Boutilier & Thomson, 2011).

The goal of the research was to determine how each of the members of the ICMM obtained an SLO and identify how they comply with the ten principles. This was conducted by reviewing each of the company's annual and sustainability reports over a five-year period. Outcomes and recommendations are provided at the end of the research, which should be of value to current ICMM members and those that are striving to become members, as well as the mining community in general.

1.3 Research Objectives

1.3.1 Main Research Objective

This research paper aimed to establish the existence of SLOs for the ICMM member companies, as well as determine the level at which these SLOs exist. Allied to this, the research investigated how these companies apply the ten principles of the ICMM to their operations. This was conducted by reviewing the companies' annual integrated and sustainability reports over a five-year period.

It was also evident that there was an improvement over time with regards to how the ICMM member companies report on SLO aspects.

1.3.2 Research Questions

The **first research question** was to determine the application and reference to SLOs within the ICMM member companies as reported in their annual integrated and sustainability reports over their latest five years.

The **second research question** was to verify the perceived level of SLOs using the last five annual integrated and sustainability reports of the ICMM members based on the Pyramid Model.

The **third research question** was to determine the compliance of the ICMM member companies with the ten ICMM principles as reported in their annual integrated and sustainability reports over their latest five years.

1.4 Significance of the research

The research paper may provide guidance for all mining companies in improving their social impact on local communities and contributing the SDG's. The research focussed on the ICMM members and reference to their SLO accreditation and compliance with the ten principles of the ICMM. Using the last five years of annual integrated and sustainability reports for each ICMM members, a trend analysis was created using data from a five-year period. This will allow mining companies to compare their performance against their competitors and identify areas for improvement.

To obtain an SLO, companies need to engage with the local communities and stakeholders at the earliest possible stage. Local communities are constantly evolving and becoming more aware of ESG risks regarding mining projects. An SLO attempts to address the concerns and complexities of the local communities, so that they are accepting and approving of the mining company's 'right' to operate within the surrounding community. This can be achieved by, inter alia, making the community part of the business decisions, providing community

benefits, delivering an opportunity for direct involvement, ensuring operations are sustainable and making certain that the company accepts accountability for its operations.

1.5 Delimitations of the study

- The purpose of the study was to provide a perspective of the ICMM member companies pertaining to SLOs. The members are regarded as leaders in sustainability best practices, within the mining sector.
- The research was dependent on information provided by the ICMM member companies over a five-year period and did not consider information beyond these boundaries.
- The study analysed an SLO and ICMM principles from the perspective of the ICMM members.
- The research addressed the SLO as defined by Thomson & Boutilier (2011) and as per their Pyramid Model.
- The research did not consider the details of the specific operational sites of mining companies, but rather focussed on the SLOs holistically as presented in ICMM member annual and sustainable reports.
- The research did not take into consideration the actual perceptions of the local communities or other stakeholders who may have been affected by the operations of the ICMM members.

1.6 Definition of terms

AMCU – Association of Mineworkers and Construction Union	The Association of Mineworkers and Construction Union (AMCU) was formed in Mpumalanga, South Africa and officially registered in 2012. There are currently just over 200,000 members from the construction, mining, security, cleaners and logistics sectors (AMCU, 2018).

CSR – Corporate Social Responsibility	Corporate Social Responsibility (CSR) is created by companies managing their business operations to provide a positive impact on society. Key focus areas are sustainability, social impact and ethics (Baker, 2003).
ESG – Environmental, Social and Governance	Environmental, Social and Governance (ESG) factors that impact investment decisions, to better manage risk and generate sustainable, long-term returns. It can also be described as responsible investing (UNPRI, 2018).
FDI – Foreign Direct Investment	Foreign Direct Investment (FDI) is an investment from one country into another. It is normally completed through companies investing in another company's operations (Lexicon, 2018).
ICMM – International Council of Mining & Metals	International Council of Mining & Metals (ICMM) is an international organisation dedicated to a safe, fair and sustainable mining sector. There are currently twenty-five members that belong to the ICMM (International Council on Mining & Metals, 2017).
NUM – National Union of Mineworkers	The National Union of Mineworkers (NUM) is a trade union in South Africa that has just over 300,000 members, making it the largest affiliate of the Congress of South African Trade Unions (NUM, 2018).
SDG - Sustainable Development Goals	The Sustainable Development Goals (SDGs) are based on seventeen individual goals that aim to end poverty and hunger, protect the planet and ensure a sustainable future for all. Member entities are encouraged to contribute towards the seventeen goals and in turn to subscribe to the 2030

	development agenda (International Council on Mining and Minerals, 2016).
SLO - Social Licence to Operate	A Social Licence to Operate (SLO) takes into consideration the beliefs, perceptions and opinions held by indigenous people, local communities and key stakeholders for a project (Thomson & Boutilier, 2011).
UNDP – United Nations Development Programme	The United Nations Development Programme (UNDP) works in about 170 countries, with the goal of assisting countries to eradicate poverty, and the reduce inequalities and exclusion. They support countries' efforts to achieve the Sustainable Development Goals and help drive the 2030 agenda (United Nations Development Programme, 2018).

1.7 Assumptions

1. The annual and sustainability reports over the last five years for all ICMM member companies are available to the public through their official websites or published results.
2. The ICMM member companies highlight and report on their community relationships, social sustainability, and application of an SLO.
3. The ICMM member companies provide support towards their ICMM membership and adherence to the ten principles.
4. The initiatives demonstrated by the companies contribute to a positive relationship towards the community and does not go into detail of the actual perceptions of the community.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

To support this research, a literature review was conducted using published articles providing an overview into an SLO. The literature review discusses the major themes and sub-themes that form part of an SLO and emphasise why it is important to the mining sector. The relationship between the SLO and the ICMM ten principles will also be analysed, along with specific concerns and issues surrounding the application of an SLO. Finally, the SDGs will be introduced and their relationship with the ICMM ten sustainable development principles and how they can be achieved through mining operations are discussed.

The term Social Licence to Operate was first introduced by Jim Cooney during a presentation convened by the World Bank 'Roundtable on Mining: The Next 25 Years', in March 1997. The SLO was used to describe the obstacles that mining companies encounter regarding their operations and building relationships with the local communities. It is now over twenty years since Jim Cooney introduced the term and he has frequently been mentioned in published articles about his role in initiating the use of 'social licence' to describe the challenges that mining companies experience in obtaining and maintaining local community support for their operations. Cooney (2017) states that his use of the term SLO was intended to be descriptive of the reality that mining companies experienced on the ground. Since the introduction of the concept in 1997, the term has evolved into a prescriptive norm that mining companies should strive to achieve. It must be stressed that a 'social licence' does not have the same concrete legal standing as a 'government permit', or similar legal licence. An SLO has a level of ambiguity and it has therefore attracted a variety of definitions and suggestions from academics, sector experts, officials, mining companies and community supporters (Cooney, 2017).

2.2 Definition of topic or background discussion.

The origin of the SLO concept can be said to be derived from the field of Environmental, Social and Governance (ESG) and sustainability. ESG strategies consider environmental, social, and governance issues within the workspace. The Brundtland report published by the World Commission on Environment and Development (1987) provides one of the initial descriptions of sustainability (Sims, 2015). The report outlines three dimensions of sustainability: environmental, social and economic. These three dimensions are similar to the concept of the Triple Bottom Line: People, Planet, and Profit. Planet refers to a company's environmental impact, People refers to a company's social impact, and Profit refers to a company's economic worth and the value addition it creates (Elkington, 1997). While the SLO concept is mainly based around social issues, environmental and governance risks are also applicable. ESG has many risks that can be split into the three elements regarding the mining sector, these include:

2.2.1 Environmental

There has been a global trend for companies to monitor and reduce their impact on the environment and it has become common for companies to establish an environmental policy. The key objectives of the policy are to: avoid or, if not possible, minimise the negative influences on human health, effectively use energy and natural resources to reduce the company's environmental impact, promote the improvement of the environment wherever possible; and encourage the reduction of greenhouse gas emissions which will contribute to lowering the impact of climate change (Biermans, 2014).

To achieve these objectives, companies should be positioning themselves to take account of the environmental impact of their operations. Depending on the impact levels, a formal Environmental Impact Assessment can be conducted to provide baseline values of the impacts and seek to improve these values over time. Significant value can be attributed to proactive and effective environmental

performance, and companies need to anticipate the drivers of regulatory expectations (Bos, 2014).

2.2.2 Social

An important aspect of any company is recognising the impact that their operations have on its workers and stakeholders. Companies should take responsibility for: Fair labour and working conditions with a respect towards human rights; The protection of the health and safety of workers, surrounding communities and consumers; and the minimisation of negative impacts on affected communities (Biermans, 2014).

To ensure companies comply with the above responsibilities, they need to adopt labour management practices and promote health and safety conditions in their operations. Labour management practices are based on the International Labour Organization core labour principles. Companies are also required to apply these principles to their contractors, especially where the contractors are direct (not sub-contractors) and where the contractors perform “core” business functions. Companies are also required to ensure there is no child labour in their operations, including their supply chain (Bos, 2014).

Companies should also take note that their operations can have a direct impact on the local communities. Changes in land use can impact the quality of soil and access to water, which could cause exposure to natural hazards such as landslides and flood. All potential risks that could impact the community must be identified, assessed, and either avoided or mitigated (Briand, 2011).

2.2.3 Governance

To promote sound environmental and social practices in operations, companies need to have good governance which oversees all these standards. Governance provides companies with the structures to uphold high ethical and legal standards of business integrity. Strong governance within a company provides the following objectives: Adopt high standards of professional conduct and excellence; Exhibit honesty, integrity, fairness and respect in all the company’s business dealings,

which improves their reputation; Deliver superior returns to its shareholders; and Promote sustainability through inclusive investments; and Encourage transparency and appropriate disclosure by properly recording, reporting and reviewing financial and tax information (Biermans, 2014).

The objectives listed above are driven through a company's Board of Directors, which takes responsibility for the governance of its operations. Corporate governance, includes ethics; corporate decision-making; auditing and accounting; compliance; risk management; reporting and disclosure; environmental and social responsibility; and relationships with stakeholders (Briand, 2011).

The King Report provides companies with guidelines for corporate governance implementation, which was established in South Africa. Since its inception, other countries refer to these guidelines they have become an international standard across the globe. The guidelines are issued by the King Committee on Corporate Governance and there have been four reports: King I – developed in 1994, King II – developed in 2002, King III – developed in 2009 and King IV – developed in 2016. The Institute of Directors in Southern Africa owns the patent of the King Reports on Corporate Governance. The latest report, King IV sets out the philosophy, principles, practices and outcomes which serve as the target for corporate governance in South Africa (Institute of Directors Southern Africa, 2016).

To ensure to ensure the Board of Directors are adequately supported, sub committees can be established with clear charters to provide support and advice to the Board. The committees' duty is to review, conduct high-level analysis and provide comprehensively deliberated proposals and recommendations to the Board on their respective mandates. The Board then considers the recommendations and proposals made by the various committees within the strategic framework of their operations (Briand, 2011).

It is evident that there are many ESG risks applicable to mining companies and these need to be introduced into the company's risk management processes. While an SLO implies links directly to social risks, the environmental and

governance risks are applicable too. Governance is an important element as if a company does not have sound governance in place then they run the risk of not mitigating the environmental and social issues in their operations. Environmental issues also have a direct impact on the community as they could be located near the operations and where environmental risks are high. Addressing these ESG risks is important for companies too, as they affect both the company and local communities.

2.3 The Social Licence to Operate

The concept of an SLO recognizes that company's operations have an impact on both the company and the society it operates in. Therefore, business operations that are directed towards the benefits of the society are on the increase and have become the norm in the sector (Laskovic, 2016).

Free, prior and informed consent (FPIC) of local communities and stakeholders is what the World Bank requires for an SLO. The process requires consent of the local stakeholders during all phases of operation, from acquisition, management and closure. Over the past decade, the rights of local, and indigenous, populations near to and surrounding mine sites have increased significantly. Mining companies are leveraged by the local stakeholders and, without consent, production stoppages and protests can be experienced (Pike, 2012).

A report that focusses on the importance of an SLO is the Ernst and Young 2016-2017 top ten business risks facing mining and metals. Obtaining an SLO is placed fourth on the list of top ten business risks associated with the sector. The report suggests that successful companies that work together with the local communities and stakeholders have provided shared value creation. Sourcing labour and procurement from these sources has generated a greater level of community engagement (Ernst and Young, 2016).

In a local context, community development is included in the Mining Charter in South Africa. The Broad-Based Socio-Economic Empowerment Charter (2010) for the South African mining and mineral sector states that mining companies need to perform a needs analysis that contributes to the communities'

development and that the cost will be proportionate to the size of project. When mining companies complete this exercise, they will not only achieve an SLO, but also contribute to CSR and corporate governance. This must be conducted with a long-term view and take into consideration ESG factors (Thulo, 2015). To meet the requirements of an SLO, companies will be required to incur costs to adhere to the demands of the local communities. The costs can be both direct and indirect, which the companies will need to factor into their budgets and operational costs. While there is a cost associated with the implementation of these social requirements, there could be a greater cost in not doing anything. This can cause a negative impact on a company's reputation, current and future revenue and even closure of a mine (Hustins, 2016).

Gunningham et al. (2004), examined an SLO as it relates to the pulp and paper manufacturing sector. They defined a SLO as the demands on and expectations that the local community, environmental groups, and other civil societies have on a company. In some occurrences, the requirements that these groups of people demand may be harder to obtain compared with government regulation, resulting in "beyond compliance" corporate initiatives, which may not be profitable to the company (Gunningham, Kagan, & Thornton, 2004).

Joyce & Thomson (2000), emphasised that an SLO is achieved by a mining project when there is approval from society to conduct its operations. They state that an SLO is a licence that cannot be granted by legal authorities, political figures, or even by the legal system. An SLO is approved by a company's neighbours, which requires a social acceptance of its resource development and in turn will generate value at a corporate level and provide a competitive advantage through improved reputation (Joyce & Thomson, 2000).

One of the major contributors to measuring an SLO are Thomson & Boutilier (2011), who indicate that an SLO is achieved through the community's perceptions of the acceptability of a mining company and operations (Boutilier & Thomson, 2011). This is supported by Lacey, Parsons & Moffat (2012), who state that it has become increasingly evident that companies need more than regulatory licences, it is also necessary to hold an SLO (Lacey, Parsons, & Moffat, 2012). In their research they conducted sixteen interviews within the

Australian minerals sector and its representative bodies. Some of the direct quotes they received include: “The most fundamental meaning to that term is getting community and government consent to carry out your activities” (Lacey, Parsons, & Moffat, 2012) p11. “An SLO is the permission that the community gives to an organisation to carry on activities nearby, or within the region” (Lacey, Parsons, & Moffat, 2012) p11. “We like to define an SLO as the need to work with and gain the approval and support of local communities and other stakeholders” (Lacey, Parsons, & Moffat, 2012) p11.

While many authors mainly focused on the community approval of a company’s operations, there are others that have different viewpoints on an SLO. Nelsen (2006) p161. Defines an SLO as “a set of concepts, values, tools and practices that represent a way of viewing reality for sector and stakeholders. Its purpose is to create a forum for negotiation whereby the parties involved are heard, understood and respected.” She further indicates that an SLO is a process for companies to earn accountability and credibility both local stakeholders and the sector (Nelsen, 2006).

Boutilier, Black, & Thomson (2012) indicate that an SLO has undertaken new developments in recent time from being a metaphor and turning into a management tool. “This requires managers to assess the situation through stakeholder identification, research and analysis; and develop a strategy for stabilising the network structure.” This however does include an element of community engagement which is common with other authors (Boutilier, Black, & Thompson, 2012).

The literature suggests that there is no single definition of an SLO. There is, however, a general understanding that an SLO is intangible and is not a legal requirement for a mining company to operate. An SLO is requires constant management and cannot be a once off occurrence. Engagement with the local community is crucial to ensure all issues and concerns are addressed and that there is full transparency in mining company’s operations. Mining companies are required to adhere to regulations defined by local governments, and in a South African context the Mineral and Petroleum Resources Development Act refers directly to the importance of the community engagement at the initial phases of

obtaining mining rights and permits. This consists of the local communities being informed and operations discussed on any mining activities applied for by mining companies in their area (Department of Mineral Resources, 2011).

2.4 Measuring a Social Licence to Operate

The previous sections of this literature review considered what an SLO is and why it is important for mining companies to obtain. This section focuses on of how an SLO is achieved and how it can be measured. Currently there are three main models used to measure and assist in obtaining an SLO: The Pyramid Model, the Three-Stand Model and the Triangle Model. This section will define and examine the three models and then finally the method that will be used to assist in this research will selected and form a base for the results section.

2.4.1 The Pyramid Model

The pyramid model, developed by Boutilier and Thomson, attempted to show the different levels of the social licence through the perceived acceptability of the mining company and its operations, which is then linked back to the company's socio-political risk. They concluded that the level of SLO obtained by a mining company is inversely related to the level of social risks that a mining company encounters (Boutilier & Thomson, 2011).

The first/lowest level of SLO is withheld or withdrawn. This level underlines that a mining project has restricted access to essential resources it requires to operate. Examples includes: finance; legal licences; raw materials, miners; and public infrastructure. This will lead to a loss of the SLO and translates into extremely high social risk (Boutilier & Thomson, 2011).

The second level of SLO is acceptance. This level is arguably the most important as it provides the basis of how an SLO is granted. The key is for mining companies to establish credibility among the local community. Over time, credibility can be turned into trust and this would provide a low level of social risk to the project (Boutilier & Thomson, 2011).

The third level is the approval level of the SLO. This level indicates that a project has received and secured access to the resources that are needed. There are certain societal questions which are presented: Will the company keep up to their agreements? Have challenges been identified and are they disclosing all information? Is the company delivering on their promises? If these questions are answered positively, then the third level is achieved (Boutilier & Thomson, 2011).

The fourth and highest level is identification, which is where the local community takes responsibility for the project's success. This is the final level where there is total trust and the community starts asking questions like have all the risks been mitigated and were the interests of the community taken into consideration (Boutilier & Thomson, 2011).

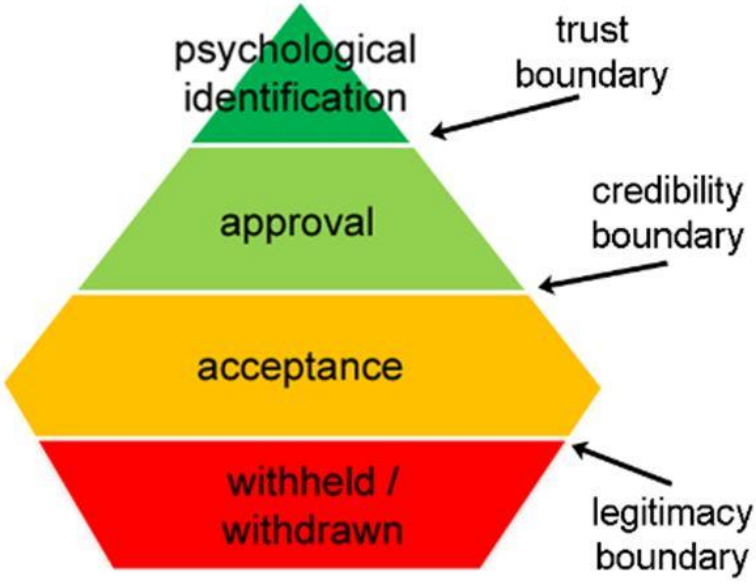


Figure 1: The "pyramid" model of the SLO proposed by (Boutilier & Thomson, 2011) p2.

2.4.2 Three-Strand model

The second SLO model which will be discussed is the Three-Strand model, which is based on the way the legal, social and economic licences interact with one another. The model was further refined by John Morrison in 2014, an executive director of the Institute for Human Rights. The change that Morrison introduced

was changing political licence to economic licence. The reason for this was that there is a close link between political and economic licences in the context of an SLO. The Three-Strand model is based on the theory that an SLO is dependent on environmental performance that seeks to obtain regulatory and economic approval (Morrison, 2014).

This model shows that an SLO is part of a larger explanatory framework, which includes both legal and economic licences. The social licence requires input from a few sources, namely: NGOs or special interest groups; the public; the local community and the media. The economic licence requires input from: The government; public voters; party members or elites; and finally, from politicians. The final licence is the legal licence which requires input from: local and international law. The Three-Strand model focusses on how these three licences work together to achieve an SLO. This is the only model that includes external regulatory factors into the measurement (Gehman & Lefsrud, 2017).

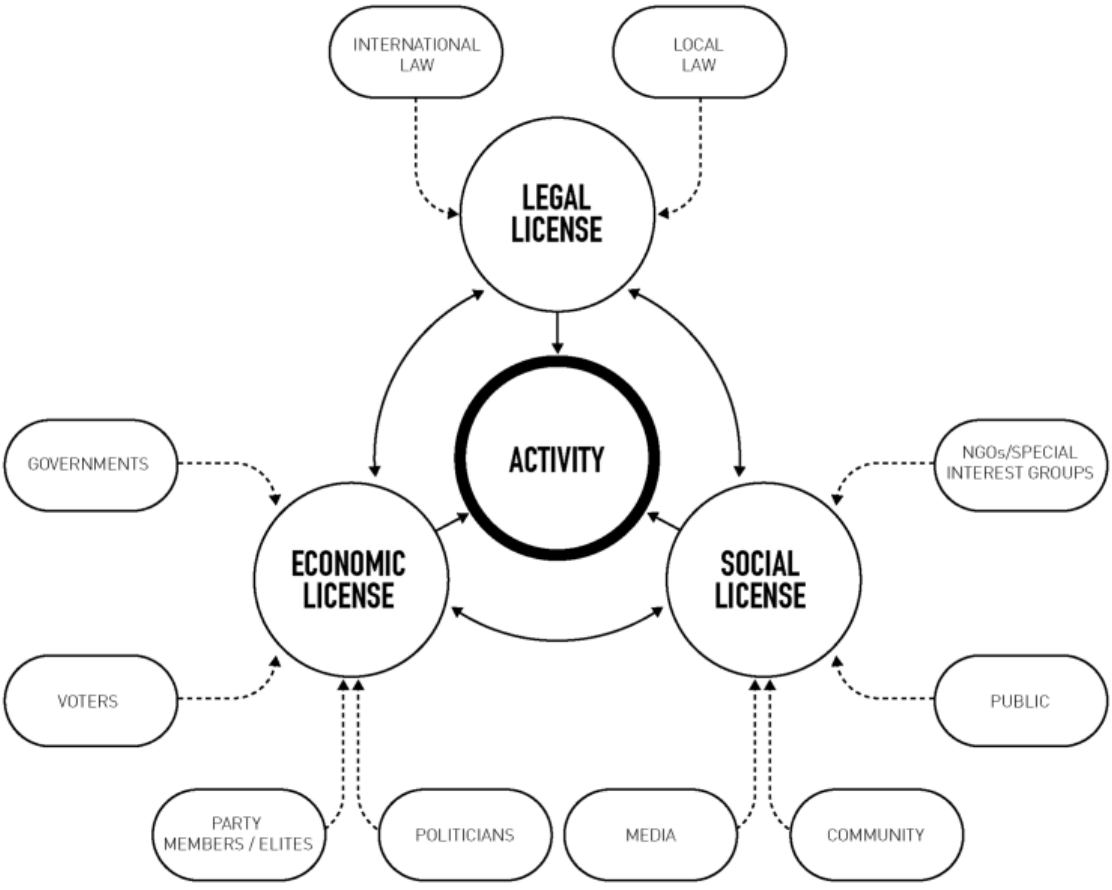


Figure 2: The Three Strand Model (Morrison, 2014) p298.

2.4.3 The Triangle Model

The final model to be discussed is the triangle model, is based on the concept of social acceptance and the development of renewable energy policies. The Triangle Model suggests that social acceptance builds familiarity, trust, and confidence through environmentally-friendly operations. The was developed by Wüstenhagen (2007) who introduced three dimensions: socio-political acceptance; community acceptance; and market acceptance.

Batel (2013) made important critiques of the term “social acceptance,” whereby individuals react differently when asked if they would accept as opposed to support an energy project. “Acceptance” suggests a more passive relationship to an energy project instead of a more active relationship. The term acceptance and support imply a degree of intervention; however, it is not necessarily realistic. Therefore, the term acceptance is formed by social relations that exist as renewables develop (Batel, 2013).

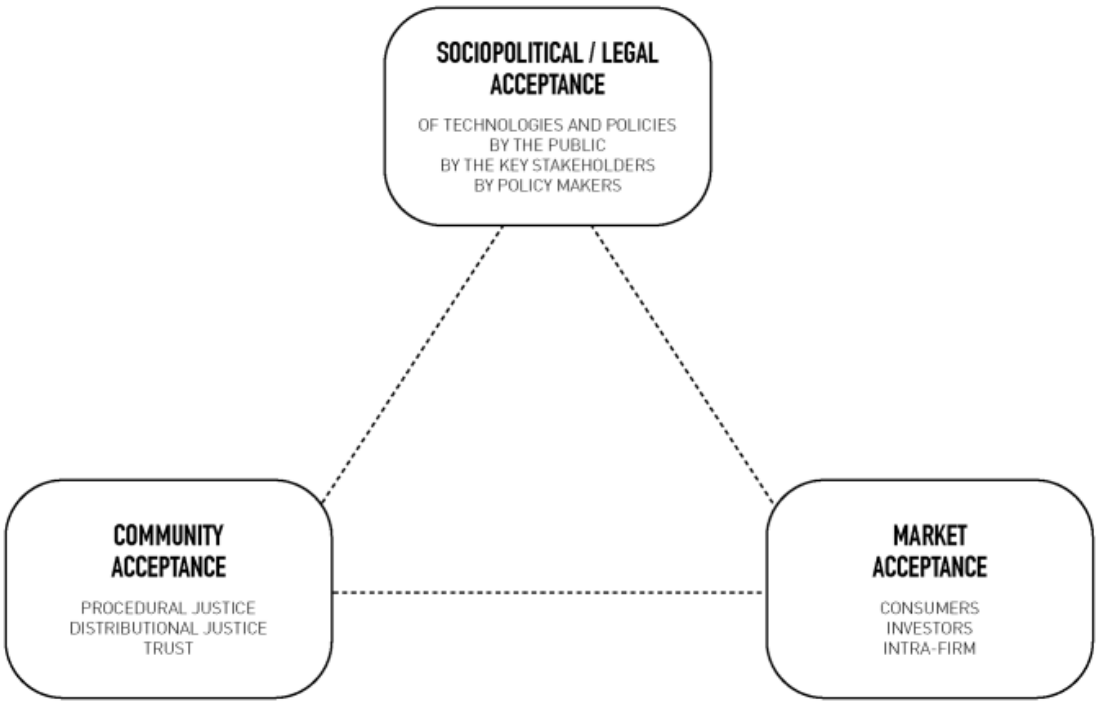


Figure 3: The Triangle Model (Wüstenhagen, 2007) p300.

This section focused on three models which measure the SLO, each defined and analysed. After comparing all three models, the one most applicable to this research is the Pyramid Model. The reason for this is that the Three-Strand and

the Triangle models focus on legal, economic and social acceptance rather than the SLO being an independent licence. The goal of the research is to focus on the local community and their perceptions and approval of the SLO.

An SLO in the mining sector is a developing concept which has been commonly been adopted by several mining companies. The Pyramid Model is comprised of the key elements required to obtain an SLO and the relationship between these elements. Mining companies recognise their role in society and look to provide action in uplifting their local communities. Companies can achieve this by having an open relationship, with the local community, which can provide a sense of legitimacy, credibility and trust towards the companies and is aligned with the ICMM principles. This relates directly to the Pyramid Model and the four levels proposed by Boutilier & Thompson (2011).

However, there were questions raised with regards to the model created by Boutilier & Thompson (2011). They then further developed and refined the model and reduced the number of levels from four to three. The updated model now places socio-political legitimacy and transactional trust on the same level. This is now referred to as the "arrowhead model" (Figure 4). This model proposes that the SLO begins with satisfactory low-commitment, fluid transactions, it then moves to the improvement in growth of social capital in the relationship, and finally it crystallizes the institutionalization of relationships. In summary the model proposes that the SLO moves from acceptance to approval as the level of trust increases (Boutilier, Black, & Thompson, 2012).

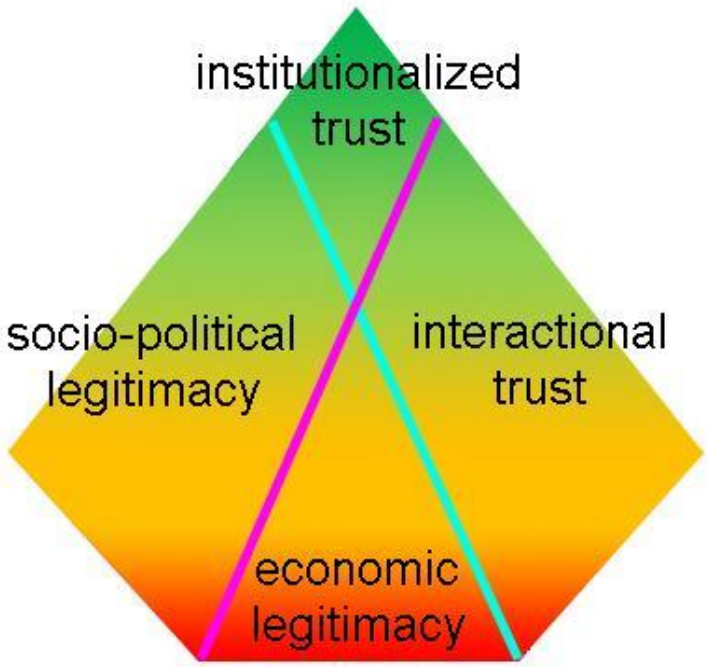


Figure 4: Levels of Social Licence (Boutilier, Black, & Thompson, 2012) p6.

In this model economic legitimacy is gained when the local community believes that the mining project provides a level of benefit towards the community. Socio-political legitimacy and Interactional trust is achieved when the community believes that the mining company is acting fairly and is actively contributing to the well-being of the community. The company is all engaged with the community and disclosing all information to the community. The final level is institutional trust, which is established when the company has the community's best interest aligned with their operations (Boutilier & Thomson, 2011). This is the most relevant model to use for the measuring of the SLO.

2.5 Who issues or grants the licence?

It is evident that the term "community" is a common occurrence throughout the literature review process. An SLO has been described as granted / issued by the community, however the literature contains a variety of the expression "community", examples include: local community; broader community; wider community; indigenous community; and vested and non-vested community. Similar expressions of community have also been utilised, these include: stakeholders, networks, neighbours, neighbourhoods, NGOs, and society. This

creates a level of uncertainty as to who grants / issues the SLO and who should be engaged. While considering the local communities, it is imperative to acknowledge that there are different types of communities that can be directly and indirectly affected by a company's mining operations, these include:

- Occupational communities – These consist of individuals or families who originate all or most of their income from the mining operations.
- Residential communities – These consist of individuals or families who live nearby the mining operations. These groups of people may live near or many far away, as operations can cause river pollution through mine tailings. It includes communities that have been present in the area before operations commenced and those that have moved into the area due to the mining operations.
- Indigenous communities – These consist of individuals or families that have an ancient and cultural attachment to the area where mining operations are taking place.

(MMSD, 2002)

Within these different types of communities there are differences, disagreements, power differences and a lack of consensus towards the best interest of the community. From a local perspective Taylor & Mahlangu (2017) conducted a research report on a community in the Northern Cape, South Africa. Even though the community was relatively small, it comprised of a few distinct groups with different interests and beliefs (Taylor & Mahlangu, 2017). This is an example of how difficult the process can be to identify who in the community grants / issues an SLO. Therefore, during the negotiation phase, mining companies need to have a full understanding of their communities and identify the key members of communities, that have the power to grant / issue an SLO.

2.6 ICMM Ten Principles

The ICMM was established in 2001 with the goal of improving sustainable development performance within the mining and metals sector Currently there are twenty-four of the mining companies that are members, as well as thirty-three

mining associations. To become a member, companies are required to make a public commitment to the ICMM ten principles of sustainable development, which is required on an annual basis. The principles of the ICMM provide companies with a point of reference for conducting business that incorporates ESG factors. Membership to the ICMM can assist companies in acquiring an SLO. In addition, the ICMM provides practical advice on the management of mining risks, including social and community development (International Council on Mining & Metals, 2017). The ten principles are:

- Principle 1: Companies are required to conduct their business operations in an ethical manner. This stems from a company's corporate governance systems that are transparent and support sustainable development. Companies form a partnership with the government, other sector companies, local communities and other stakeholders and they contribute to the sectors sustainable development strategy (International Council on Mining & Metals, 2017).
- Principle 2: Companies have an integrated approach to sustainable development throughout their corporate strategy and decision-making processes. The companies process during all phases of a projects lifecycle incorporates sustainable development. Finally, they implement ESG factors into the company's operations and seek to enhance shareholders value (International Council on Mining & Metals, 2017).
- Principle 3: Companies need to ensure that all human rights are respected, with a focus on employee and communities' interests, cultures, customs and values. Companies will practice fair remuneration and provide a safe working environment for all employees and abstain from forced and child labour. They will also demonstrate respect towards local community's culture, heritage and customs (International Council on Mining & Metals, 2017).
- Principle 4: Companies will incorporate risk management systems that consider their local communities and stakeholders perceptions of risk. Companies will inform all affected parties of the potential risks and what measures are in place to mitigate them; Finally, companies will have in place an emergency response procedure that considers all potentially

affected parties and that training is provided (International Council on Mining & Metals, 2017).

- Principle 5: Companies will ensure that there will be continuous improvement in ESG performance with the goal of zero damage. Companies will implement a management system that promotes and improves all ESG performances for all employees and contractors. This includes conducting regular surveillance and ensuring that all risks are monitored, providing a safer working environment for all employees and contractors (International Council on Mining & Metals, 2017).
- Principle 6: Companies must look to improve their environmental performance through water stewardship, energy use and climate change. Companies will assess the environmental risks of their operations throughout the life-cycle of the projects. Companies will ensure that they have sound waste management practices in place (International Council on Mining & Metals, 2017).
- Principle 7: Companies will ensure that the conservation of biodiversity is included in their land-use planning. Companies will provide scientific data on towards biodiversity assessment and disclose their and promote practices and experiences (International Council on Mining & Metals, 2017).
- Principle 8: Companies will facilitate and support the knowledge-base by introducing strategies that promote the sustainable practices that salvage and discard products in an environmentally friendly manner (International Council on Mining & Metals, 2017).
- Principle 9: Companies will continuously improve their social impact that is aligned towards the best social and economic development of the country. Companies will set up an engagement with the nearby communities and stakeholders to address all issues and potential conflicts concerning social impacts (International Council on Mining & Metals, 2017).
- Principle 10: Companies will proactively engage with the local communities on their social impact and ensure that they are transparent and disclose all relevant information. Companies will also provide an

update on their improvements towards their social impact. Companies will provide reports on their ESG performance and their contribution towards sustainable development (International Council on Mining & Metals, 2017).

The ICMM created the ten principles on the basis that respect for human rights is the key aspect of sustainable development. It is this focus on sustainable development that is key to the ICMM's mandate. ICMM's members are committed to the ICMM sustainable development framework which includes the ten principles. While the ICMM's overall work is with regards to human rights, there is also a great involvement on external engagement. Through these guiding principles, ICMM members identify that they play a significant role in creating a safer and more sustainable mining and metals sector. These member companies recognise that through their commitments and working together with the local governments and communities, they can improve the quality of life beyond minerals and metals by creating a sustainable lifestyle. The mining sector can generate significant economic and social benefits for local communities during the operating life of a mine and after its closure. Using these ten principles can assist companies in contributing to these benefits and in turn contribute towards the United Nation Sustainability Goals, which is described in the section below.

It can be argued that the ICMM principles were established as aspirational statements without any great sense of how each principle is measured. Aidan Davy, the chief operating officer of the ICMM believes that the ICMM member companies have demonstrated good practice by implementing the guidance provided by the ten principles to help deliver on the public promise (International Council on Mining & Metals, 2017).

2.7 ICMM and the Sustainable Development Goals

The United Nation (UN) Sustainable Development Goals (SDGs) are based on seventeen individual goals that aim to end poverty and hunger, protect the planet and ensure a sustainable future for all (United Nations Development Programme, 2018).

The goals are:

- SDG 1 – No Poverty: The 1st goal focuses on the global need to build a resilience to those individuals that experience poverty and seek to reduce their exposure to climate-related and other social and economic risks through poverty eradication (United Nations Development Programme, 2018).
- SDG 2 – Zero Hunger: The 2nd goal focusses on bringing an end to hunger, through providing food for all, and producing food that is a sustainable and has climate-resilient farming practices (United Nations Development Programme, 2018).
- SDG 3 – Good Health and Well-Being: The 3rd goal focusses on the need to eradication of HIV/AIDS, tuberculosis, malaria and certain other infectious diseases. Over the past decade, there have been major improvements in addressing malaria, tuberculosis, polio and the spread of HIV/AIDS. These improvements have provided significant economic benefits as improved health is key to promote sustainable development (United Nations Development Programme, 2018).
- SDG 4 – Quality Education: The 4th goal focusses on the requirement for the extension of quality education for all individuals which go beyond primary school. This includes technical and professional training to support individuals job performance and enterprise development (United Nations Development Programme, 2018).
- SDG 5 – Gender Equality: The 5th goal focusses on eradicating all forms of discrimination against women and girls, a put an end to gender violence. Providing women and girls with equal opportunity towards education, health care, work, and economic decision-making processes will promote sustainable economies and benefit communities at large (United Nations Development Programme, 2018).
- SDG 6 – Clean Water and Sanitation: The 6th goal focusses on providing access to drinking water and sanitation along with addressing and matters with regards to the quality and supply of water management. Water is a precious resource that provides social, cultural, environmental and economic value (United Nations Development Programme, 2018).

- SDG 7 – Affordable and Clean Energy: The 7th goal focusses on companies to provide access to sustainable energy services and implement energy efficiency measures into their operations. The mining sector is a significant user of energy and contributes to two percent of the global energy use (United Nations Development Programme, 2018).
- SDG 8 – Decent Work and Economic Growth: The 8th goal requires companies to put in place policies and strategies that enable economic diversification, job creation, entrepreneurship, creativity and innovation. Mining companies have the potential to create large economic multipliers for example through local procurement (United Nations Development Programme, 2018).
- SDG 9 – Industry, Innovation, and Infrastructure: The 9th goal requires companies to provide quality, reliable and sustainable infrastructure that improves existing infrastructure (United Nations Development Programme, 2018).
- SDG 10 – Reduced Inequalities: The 10th goal encourages companies to provide sustained income growth which favours economic empowerment of all (United Nations Development Programme, 2018).
- SDG 11 – Sustainable Cities and Communities: The 11th goal urges companies to provide safe, acceptable, affordable housing and basic services (United Nations Development Programme, 2018).
- SDG 12 – Responsible Consumption and Production: The 12th goal requires companies to incorporate sustainable management and look towards the efficient use of natural resources. This will can be conducted by decreasing waste, reduction of energy, recycling and reusing products, and finally repairing equipment for its operations (United Nations Development Programme, 2018).
- SDG 13 – Climate Action: The 13th goal focuses on companies to take rapid action to decarbonise the global economy which is aligned to the Paris Agreement on climate change which calls on governments to limit global warming (United Nations Development Programme, 2018).

- SDG 14 – Life Below Water: The 14th goal focuses on the reduction of negative impact on the world's oceans and the protection of fragile marine ecosystems (United Nations Development Programme, 2018).
- SDG 15 – Life on Land: The 15th goal focuses on a rapid and full observance of all international agreements relating to conservation, restoration and sustainable use of land (United Nations Development Programme, 2018).
- SDG 16 – Peace, Justice and Strong Institutions: The 16th goal focusses on the reduction of all forms of violence. Mining companies can contribute to this goal by having in place peaceful relations with their local communities that respects human rights, providing access to information, supporting representative decision-making, and avoiding conflict (United Nations Development Programme, 2018).
- SDG 17 – Partnership for the Goals: The 17th and final goal calls for a better collaboration on finance, technology, capacity building and trade, and for the massive scale-up of the impact of partnering of all forms (United Nations Development Programme, 2018).

The seventeen goals are the main contributors towards the United Nation's 2030 Agenda for Sustainable Development. Already the ICMM's member companies have established themselves as contributing to sustainable development through the implementation of the ICMM ten principles. Combining the ICMM principles and the SDG's provides a more defined approach towards sustainable development. The seventeen goals and a hundred and fifty-nine targets defined by the United Nations provide a more measured approach to sustainability and provides the mining sector with an opportunity to become a major contributor towards the 2030 agenda. The SDG's have been defined above, however the actual role that mining can contribute are identified below:

- SDG 1 – No Poverty: Mining companies can aid in reducing poverty through direct employment of these individuals, sourcing goods and services from local sources and contribute to taxes and corporate social responsible initiatives. Many of the mines that companies operate in found

in remote locations and poverty levels within the local communities can be quite high (International Council on Mining & Metals, 2018).

- SDG 2 – Zero Hunger: Mining companies can aid towards this goal as their operations are often in areas where agriculture is also prominent. Companies are required to mitigate the impact they have on the natural resources and land use, and they can provide the opportunity for the community and other agriculture companies to produce food on these lands (International Council on Mining & Metals, 2018).
- SDG 3 – Good Health and Well-Being: Mining company employees are directly exposed to occupational health risks such as cardiovascular, respiratory diseases, and other diseases such as tuberculosis and HIV/AIDS (International Council on Mining & Metals, 2018).
- SDG 4 – Quality Education: The mining sector can contribute to the quality education goal by creating a partnership with the local government to assist in increasing local capacity and providing technical, professional and educational training programmes for the workforce and local community (International Council on Mining & Metals, 2018).
- SDG 5 – Gender Equality: Mining companies are required to take into consideration gender equality, as it relates to both their workforce and to local communities (International Council on Mining & Metals, 2018).
- SDG 6 – Clean Water and Sanitation: Water is a critical resource for mining companies and it is crucial the health and well-being of their employees and local communities during each stage of the mining life cycle. Water is a resource that mining companies use during their operations and they are significant users of water, which negatively impacts water access and quality, therefore sound water management practices need to be applied throughout the company's operations (International Council on Mining & Metals, 2018).
- SDG 7 – Mining companies can reduce their carbon emissions through implementing energy efficiencies and introducing renewable technologies. The remote location of many mines also provides the potential for shared-use energy infrastructure, to enable local communities to access energy

that previously may not have had access (International Council on Mining & Metals, 2018).

- SDG 8 – Decent Work and Economic Growth: Mining operations can have a positive impact on a country's gross domestic product values, and together with government, income from mining can have an impact on the broader economy (International Council on Mining & Metals, 2018).
- SDG 9 – Industry, Innovation, and Infrastructure: The mining sector requires significant infrastructure to conduct their operations. This is especially evident when mining is conducted in remote areas, where companies are required to make significant investments in infrastructure (International Council on Mining & Metals, 2018).
- SDG 10 – Reduced Inequalities: Even though governments are mainly responsible for reducing inequality through policies and social mechanisms, the mining sector can actively reduce inequalities through local employment and procurement that promotes the local economy (International Council on Mining & Metals, 2018).
- SDG 11 – Sustainable Cities and Communities: The mining sector produces materials that assist in the construction of infrastructure such as steel, copper and aluminium. Mining companies also provide a connection between cities through road, rail and air transport (International Council on Mining & Metals, 2018).
- SDG 12 – Responsible Consumption and Production: The mining sector generates large quantities of waste and having these measures in place will contribute to a reduction and efficient use of materials (International Council on Mining & Metals, 2018).
- SDG 13 – Climate Action: Mining companies play a vital role in this as they can reduce their carbon footprint and ensure that they have sustainable policies and measures in place. The local communities can also benefit from these sustainable measures and lower the impact of climate change (International Council on Mining & Metals, 2018).
- SDG 14 – Life Below Water: The mining sector utilises oceans for shipping products and materials across the globe and even conduct subsea shallow

mining, submarine tailings and deep-sea mining (International Council on Mining & Metals, 2018).

- SDG 15 – Life on Land: Mining and its associated infrastructure can have a negative impact on the ecosystem and companies must strive to mitigate their impact by implementing a framework that minimises the effect on the biodiversity (International Council on Mining & Metals, 2018).
- SDG 16 – Peace, Justice and Strong Institutions: Mining companies can contribute to this goal by having in place peaceful relations with their local communities that respects human rights, providing access to information, supporting representative decision-making, and avoiding conflict (International Council on Mining & Metals, 2018).
- SDG 17 – Partnership for the Goals: Mining companies are among the most sophisticated and experienced of corporate partners in addressing a range of sustainable development challenges (International Council on Mining & Metals, 2018).

The mining sector can influence sustainable developments around the globe. Mining companies should embrace this opportunity, while at the same time focus on how their operations affect the lives of individuals around the mines.

2.8 Summary of Literature Review

The literature review defined what an SLO is and how it can be used as an instrument to change the way companies approach its social impact. An SLO encourages companies to not only focus on profits, but also on ways to benefit the local communities and stakeholders. The key is for companies to develop a sustainable relationship between the community and be as transparent as possible. Establishing an active engagement with the community is imperative to obtain an SLO and for mining operations to commence. There are several guidelines in the market that can assist companies to achieve an SLO and these can benefit both the company and the local community. While measuring an SLO is not an easy task, companies need to follow trends and identify risks that their operations have on an ESG level. Obtaining an SLO provides a company with

the comfort that operations are supported by the local communities and there is a decreased chance of halts and strikes taking place.

The ICMM provides guidance for mining companies to adopt and, in turn, become members of the ICMM. There are ten principles that member companies are required to strive towards and these have a direct link to the SDGs. The SDGs provide an important framework to contribute towards putting an end to poverty and hunger, protecting the planet and ensuring a sustainable future for all. For these reasons this report considers the SLO, the Ten Principles and the SDG's as it is apparent that no single element can be achieved in isolation and these three components appear to be interlinked, and to an extent inseparable, in the mining sector.

2.8.1 Research Question 1:

What do the ICMM member companies report and highlight as their contribution towards achieving an SLO and what is their perceived level?

2.8.2 Research Question 2:

How well do the ICCM member companies adhere to the ten Principles and does this align with their SLO and the United Nations Sustainable Development Goals?

CHAPTER 3. METHODOLOGY

The methodology that was used in this research was a qualitative content analysis of the twenty-four ICMM member companies' annual integrated and sustainability reports over a five-year period.

3.1 Research methodology / paradigm

Creswell (2003) states that using a qualitative methodology for an inquiry process provides the researcher with an opportunity to develop a complex framework, which can provide a holistic picture that analyses words, reports and interviews. A qualitative research methodology contains data that is gathered from a daily setting which the research is outlined by. This data can then be assessed and utilised to support the problem statement and provide contextual factors to provide an answer to the research. Using the qualitative methodology to conduct research provides an opportunity to identify specific values, opinions, behaviours, and social contexts of the population, which will assist in responding to the problem statement (Creswell, 2003).

For any research that is conducted, selecting the appropriate methodology is critical to provide the data required to support the research problem and validate findings, comparisons and summaries (Kumar, 2014). For this research paper, the most relevant methodology was the qualitative cross-sectional content methodology. This form of methodology provides an approach towards analysing written, audio, or visual 'documents' to explore existing information to identify possible trends that can assist in answering the research problem (Grbich, 2013).

There are many advantages in using the qualitative cross-sectional content methodology, these include: Having the flexibility to source the data and content used for the research; data is transparent; large documents can be reduced and simplified; and many sources of documents can be used together to provide a greater overview of the research topic. On the contrary, there are also some disadvantages in using this methodology, these include: possible bias because of poor or limited sampling; the documents do not provide a quality analysis of

the research problem; and relationships / links between the data sources is not easily identified (Grbich, 2013).

3.2 Research Design

The methodology that was used for this research required converting qualitative data into more meaningful numerical data, which assisted in proving a link / relationship between the mining companies and the SLO concept. The approach taken is depicted below:

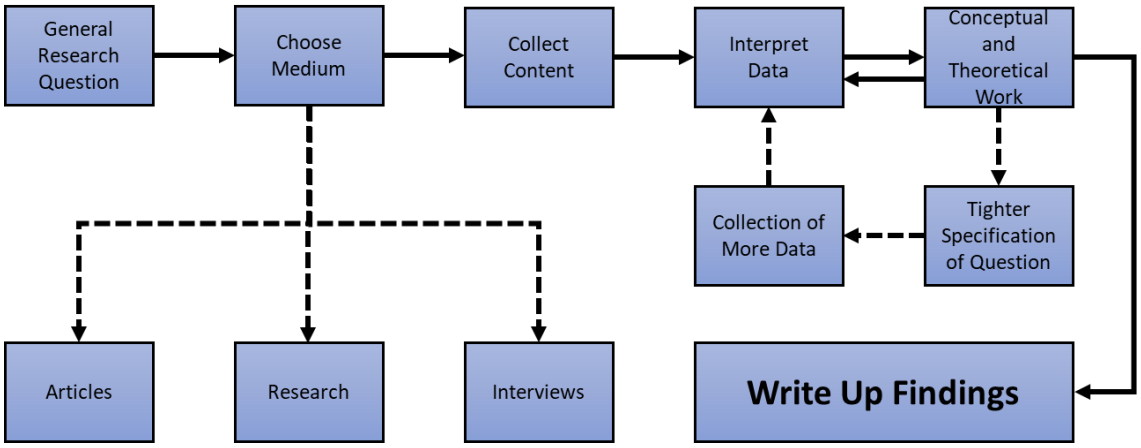


Figure 5: Research methodology (Ladner, 2008) p11.

The research methodology included systematically sourcing information from the ICMM member company's websites for a five-year period. The information included both annual integrated reports and annual sustainability reports for each company. The period of reports downloaded ranged from 2012 to 2016/7. Research question 1 result analysis was conducted by searching the reports for a reference towards their SLO, local community engagement, transparency and disclosure. The company reports were also analysed to attempt to measure the level of SLO and what procedures they have in place to address the SLO. Research question 2 followed a similar approach by searching the reports for a reference of the ICMM. The final analysis included aligning each company's operations to the ICMM ten principles as is required by their membership.

3.3 Population

Population refers to a well-defined collection of individuals or objects that have comparable characteristics. The sample is the portion of the population that is being utilised for the research. In qualitative methodology, sampling is guided by the researcher's judgement regarding what source will provide the most relevant and applicable data points, which is selected through a process of what will provide you with the 'best' information, this means that it is not a random process (Kumar, 2014).

For this research, the population and sample are the same, as the twenty-four ICMM member companies will be used as a reference towards the SLO and ICMM compliance. It must be noted that the results of this research were not intended to reflect the entire mining sector, but rather to the twenty-four ICMM member companies.

3.3.1 *Demographic profile of respondents*

Company Name	Year Joined	Description	Company Products
African Rainbow Minerals (ARM)	2009	ARM is one of South Africa's leading diversified mining companies with operations throughout Southern Africa. ARM's head office is based in Johannesburg, South Africa, and it is listed on the Johannesburg Stock Exchange. Countries that ARM operate in are: Malaysia; South Africa; and Zambia.	Iron, manganese, chrome, PGM, copper, nickel, coal, and gold.
Anglo American (AA)	Founding member	AA is a global diversified mining company with have operations around the globe. AA's head office is based in London, United Kingdom, and is listed on the London Stock Exchange and Johannesburg Stock Exchange. Countries that AA operate in are: Botswana; Brazil; Canada; Chile; Finland; Namibia; Peru; South Africa; and Zimbabwe.	Diamonds, PGM, copper, nickel, coal, iron, manganese, nibium and phosphates.

Anglo Gold Ashanti (AGA)	Founding member	AGA is a leading gold producer that have international operations. AGS's head office is based in Johannesburg, South Africa, and is listed on five stock exchanges. Countries that AGA operate in are: Argentina; Australia; Brazil; Colombia; Democratic Republic of the Congo; Ghana; Guinea; Mali; Tanzania; and South Africa.	Gold, silver, uranium and sulphuric acid.
Antofagasta Minerals (AM)	2014	AM is a copper mining group that has substantial by-product production in its operations. AM's head offices are based in London, United Kingdom, and Santiago, Chile, and is listed on the London Stock Exchange. Countries that AM operate in are: Argentina; Australia; Canada; Chile; Finland; Mexico; Portugal; United States of America; and Zambia.	Copper, gold, molybdenum and silver.
Barrick	2008	Barrick is gold and copper mining company that have operations around the globe. Barrick's head office is based in Toronto, Canada, and is listed on the TSE and NYSE. Countries that Barrick operate in are: Argentina; Australia; Canada; Chile; DRC; Papua New Guinea; Peru; Saudi Arabia; USA; and Zambia.	Gold and copper.
BHP	Founding member	BHP is one of the world's greatest producers of major commodities and has projects around the globe. BHP's head office is based in Melbourne, Australia, and it is listed on the London Stock Exchange, New York Stock Exchange, Johannesburg Stock Exchange and Australia Stock Exchange. Countries that BHP operate in are: Algeria; Australia; Brazil; Canada; Chile; Colombia; Malaysia; Peru; Singapore; Trinidad and Tobago; United Kingdom; and USA.	Coal, copper, iron ore, petroleum, nickel and potash.

Codelco	2011	Codelco is a copper mining company that operates in South America. Codelco's head office is based in Santiago, Chile. Countries that Codelco operate in are: Brazil; Chile; and Ecuador.	Copper, molybdenum, gold, silver, anode sludges, sulfuric acid and wire rods
Freeport-McMoRan (FM)	Founding member	FM is a globally diversified natural resources company with international operations. FM's head office is based in Phoenix, United States of America, and is listed on the New York Stock Exchange. Countries that FM operate in are: Chile; Indonesia; Peru; and USA.	Copper, gold and molybdenum.
Glencore	2014	Glencore is one of the world's greatest producers of major commodities and has projects around the globe. Glencore's head office is based in Switzerland and is listed on the London Stock Exchange and Hong Kong Stock Exchange. Countries that Glencore operate in are: Argentina; Australia; Bolivia; Burkina Faso; Canada; Chad; Chile; Colombia; DRC; Equatorial Guinea; Kazakhstan; Namibia; Peru; Philippines; South Africa; United States of America; and Zambia.	Copper, zinc, nickel, ferroalloys, aluminum, coal, oil.
Goldcorp	2009	Goldcorp is mainly a gold mining company with operations throughout south and north America. Goldcorp's head office is based in Vancouver, Canada, and is listed on the Toronto Stock Exchange and New York Stock Exchange. Countries that Goldcorp operate in are: Argentina; Canada; and Mexico.	Gold, silver, copper, lead and zinc.
Gold Fields (GF)	2007	GF is a diversified producer of gold with international operations. GF's head office is based in Johannesburg, South Africa, and is listed on five stock exchanges. Countries that GF operate in are:	Gold and copper.

		Australia; Chile; Finland; Ghana; Peru; Philippines; and South Africa.	
Hydro	2011	Hydro is an aluminum mining company that have operations around the globe. Hydro's head office is based in Oslo, Norway, and is listed on the Oslo Stock Exchange. Countries that Hydro operate in are: Australia; Brazil; Canada; Norway; Qatar; and United States of America.	Bauxite, alumina, primary aluminum, aluminum casthouse and products.
JX Nippon (JX)	Founding member	JX is a copper mining company. JX Nippon Mining & Metals head office is based in Tokyo, Japan, and is listed on the Tokyo Stock Exchange. Countries that JX operate in are: Chile; and Japan.	Copper.
Lonmin	2004	Lonmin is a platinum group metals mining company. Lonmin's head office is based in London, United Kingdom, and is listed on the London Stock Exchange and Johannesburg Stock Exchange. The country that Lonmin operates in is South Africa.	Gold, copper, nickel, chrome and cobalt.
Mitsubishi Materials (MM)	2002	MM is a diversified materials mining company that mainly focuses on copper. MM's head office is based in Tokyo, Japan, and is listed on the Tokyo Stock Exchange. Countries that MM operate in are: Japan; and Peru.	Copper.
MMG	2009	MMG is a global resources mining company with international operations. MMG's head office is based in Melbourne, Australia, and is listed on the Hong Kong Stock Exchange and Australia Stock Exchange. Countries that MMG operate in are: Australia; DRC; and Peru.	Copper, zinc and other base metals projects.
Newcrest Mining (NM)	2017	NM is gold mining company and their head office is based in Melbourne, Australia. Countries that NM operate in are: Australia; Côte d'Ivoire; Fiji; Indonesia; and Papua New Guinea.	Gold, silver and copper.

Newmont	Founding member	Newmont is gold mining company that has its head office in Greenwood Village, United States of America, and is listed on the New York Stock Exchange. Countries that Newmont operate in are: Australia; Ghana; Peru; and USA.	Gold, silver and copper.
Polyus	2015	Polyus is gold mining company that has its head office in Moscow, Russia, and is listed on the Moscow Stock Exchange.	Gold.
Rio Tinto (RT)	Founding member	RT is a diversified mining groups with operations around the globe. RT's head office is in London, United Kingdom, and is listed on the London stock exchange, New York Stock Exchange and Australia Stock Exchange. Countries that RT operate in are: Australia; Brazil; Canada; Chile; France; Guinea; Iceland; Indonesia; Mongolia; Mozambique; Namibia; New Zealand; Oman; Serbia; South Africa; and USA.	Aluminum, copper, diamonds, gold, iron ore, coal and uranium.
South32	2015	South32 is a diversified metals and mining company that have operations around the globe. South32's head office is in Perth, Australia, and is listed on the Australia Stock Exchange. Countries that South32 operate in are: Australia; Brazil; Colombia; and South Africa.	Alumina, bauxite, metallurgical, energy coal, manganese, silver, lead, zinc and aluminium.
Sumitomo Metal Mining (SMM)	2002	SMM is a diversified metals and mining company that has its head office in Tokyo, Japan, and is listed on the Tokyo Stock Exchange. Countries that SMM operate in are: Australia; Brazil; Chile; China; Japan; Malaysia; Peru; Philippines; Singapore; Solomon Islands; South Korea; Taiwan; and USA.	Copper, nickel, cobalt, gold, silver, platinum, ruthenium and rhodium.
Teck	2006	Teck is a diversified metals mining company with operations in North and South America. Teck's head office is in Vancouver, Canada, and is listed on the Toronto Stock Exchange and New York Stock	Coal, copper, zinc, lead and molybdenum.

		Exchange. Countries that Teck operate in are: Canada; Chile; Peru; and USA.	
Vale	2017	Vale is a diversified metals mining company that have operations around the globe. Vale's head office is based Rio de Janeiro, Brazil, and is listed on the stock exchanges of Sau Paulo Stock Exchange, New York Stock Exchange, and Peru Stock Exchange. Countries that Vale operate in are: Australia; Brazil; Canada; China; Indonesia; Mozambique; Oman; USA and Zambia.	Coal, copper, iron ore, manganese and nickel.

Table 1: Demographic Profile of Respondents

Looking at the company demographics, there is a good international representation covering all most of the continents. During 2018, New Areva, refocused on nuclear materials development and waste management, has become Orano. Due to this recent change, Orano was removed from the population sample for this research as they require more time establish their new brand and implement their strategies across the Groups operations. Therefore, the research was conducted using twenty-four ICMM member companies.

3.4 The research instrument

The research methodology that was used, is based on a cross-sectional content research design which requires a grouping of data from many sources over a period of five-years to collect qualitative data which can provide a connection between two or more variables. This was conducted through the collection of annual integrated and sustainability reports for the twenty-four ICMM member companies. The reports will be over a five-year period to fully analyse the SLO integration over a set period (Bryman, 2012).

3.5 Procedure for data collection

Data was collected by accessing all twenty-four ICMM member companies' websites and downloading the annual integrated and sustainability reports for the

last five years. The reports were read with the intent to find key words and phrases which related to questions as per research instrument.

3.6 Data analysis and interpretation

The data was collected through the qualitative analysis of the twenty-four ICMM member company's annual integrated and sustainability reports over a five-year period. The aim of the research was to analyse the data in conjunction with the requirements of an SLO. This provided an overview of how the ICMM member companies subscribed to the concept of an SLO and determined the level at which an SLO exists. The data was separated into key requirements of the SLO and ICMM membership. The first research question required an analysis of how each company referenced an SLO, engagement with the local community, reference to being transparent and having disclosure in their reporting. The results were based on both the annual integrated and sustainability reports over a five-year period. The second research question focussed on adherence to the ICMM ten principles on sustainable development and the UN SDG's, whereby the companies' reports were analysed for referenced towards the principles. The results were based on latest annual sustainability report for each company. The final analysis consisted of comparing the results to the findings from the literature review.

The methodology followed John Creswell's qualitative research design (Creswell, 2003).

- Data display: Presenting each set of data pictorially, this can be in the form of charts, tables, graphs, figures and matrixes;
- Data transformation: Data that is in a qualitative form can be transformed into qualitative data which then can be used to analysed without the involvement of statistically data;
- Data consolidation: Different qualitative data points can be combined or manipulated to create different variables or data sets;
- Data comparison and correlation: Using quantitative data inputs to compare the analysis to one another;

- Data integration: Combining qualitative data from all the reports into one whole analysis and not to separate sets.

3.7 Limitations of the study

- The study was limited to the twenty-four ICMM member companies as per ICMM website.
- The study is dependant on the availability of the five latest sustainability and five annual integrated reports of the twenty-four ICMM member companies on the official company websites.

3.8 Validity and reliability

Validity is the extent that a research correctly reflects or assesses the problem statement and assist the researcher in verifying their results to the research problem statement (Thorndike, 1997). The research is based on the twenty-four ICMM member companies with regards to obtaining an SLO and adhering to the ten ICMM principles. To determine this information, the company annual integrated and sustainable reports will be used and form a valid source of data that can assist in identifying the company's role towards the SLO and ICMM membership.

3.8.1 External validity

External validity refers to the generalisation of the research results that can overlap different populations, locations, periods, results, and differences (Cook, 1979). The research sample is not random, it is based on the twenty-four ICMM member companies. The findings are not intended to be a common feature of the mining sector, but rather to provide a summary as it applies to the ICMM member companies.

3.8.2 Internal validity

Internal validity refers to the causal relationship that can exist between two or more variables. Determining the relationship between each member company's social impacts and approval of an SLO will be validated (Cook, 1979).

3.8.3 Reliability

The qualitative research methodology is dependent on data which is precise, consistent, and measurable. If these three elements are present, then reliability can be achieved, and results can be compared to results of previous studies to determine its reliability. The data that will be used in this research is contained within the twenty-four ICMM member company's annual integrated report and sustainability report over a five-year period. In total there are two hundred and fifty reports to analyse.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

Chapter 4 focuses on answering the two research questions stated in the literature review chapter. A combination of tables and figures will be provided to provide a response to the two research questions. Following each section of tables and graphs, the results are discussed, and common trends and areas of focus or lack of attention identified.

It is important to note when the twenty-four ICMM member companies joined the ICMM and adopted their principles. The founding members include: Anglo American, Anglo Gold Ashanti, BHP, Freeport-McMoRan, JX Nippon, Newmont, and Rio Tinto. During the period 2002 to 2010, the following companies joined: African Rainbow Minerals, Barrick, Goldcorp, Gold Fields, Lonmin, Mitsubishi Materials, MMG, Sumitomo Metal Mining, and Teck. Finally, from 2010 to 2016 the following companies joined the ICMM: Antofagasta Minerals, Codelco, Glencore, Hydro, Polyus, and South32. The newest members are: Newcrest Mining and Vale.

In the tables below, NR represents that there was no report for that year.

4.2 Results pertaining to Research Question 1

What do the ICMM member companies report and highlight as their contributions towards an SLO and what is their perceived level?

As mentioned previously, the research was conducted through an analysis of the twenty-four ICMM member company annual and sustainability reports. The first question related to the company's contribution towards the an SLO and what their perceived level is to obtain the licence. Key aspects that were identified were the companies reference to an SLO, local community engagement, and disclosure and transparency.

4.2.1 SLO acknowledgment

To determine company's acknowledgement of an SLO, a search was conducted throughout all the annual and sustainability reports over a five-year period. This would be able to identify a trend in acknowledgement over a five-year period and verify if there is a positive trend in occurrences over time. Some companies used the term "social licence to operate", while others just referred to "licence to operate". Therefore, to ensure obtain constant results, "licence to operate" was used as a search reference within the company reports. Results were grouped into integrated annual reports, sustainability reports and a combination of the reports.

Table 2 provides an overview of the results of the company's reference to the "licence to operate" across a five-year period in both the annual integrated and sustainability reports.

Company	Annual Integrated Report							Annual Sustainability Report							Grand Total
	2012	2013	2014	2015	2016	2017	Total	2012	2013	2014	2015	2016	2017	Total	
ARM	NR	5	3	2	5	14	**29**	NR	3	13	8	10	30	**64**	**93**
Anglo American	1	0	0	0	0	NR	**1**	3	1	3	2	1	NR	**10**	**11**
Anglo Gold Ashanti	1	5	9	7	8	NR	**30**	1	8	6	25	10	NR	**50**	**80**
Antofagasta Minerals	4	5	4	9	3	NR	**25**	5	3	1	1	0	NR	**10**	**35**
Barrick	0	0	0	0	0	NR	**0**	8	1	1	0	2	NR	**12**	**12**
BHP	NR	6	4	3	7	10	**30**	NR	3	2	2	3	2	**12**	**42**
Codelco	0	0	0	1	0	NR	**1**	NR	NR	NR	0	N/A	NR	**0**	**1**
Freeport-McMoRan	0	0	0	0	0	NR	**0**	0	0	0	0	0	NR	**0**	**0**
Glencore	4	4	3	6	4	NR	**21**	0	2	11	8	4	NR	**25**	**46**
Goldcorp	0	0	0	0	0	NR	**0**	0	0	2	3	2	NR	**7**	**7**
Gold Fields	21	26	28	32	30	NR	**137**	0	0	5	6	7	NR	**18**	**155**
Hydro	0	0	0	0	0	NR	**0**	NR	NR	NR	NR	NR	NR	**0**	**0**
JX Nippon	0	0	0	0	0	NR	**0**	0	0	0	0	0	NR	**0**	**0**
Lonmin	8	11	12	11	8	NR	**50**	9	4	33	33	27	NR	**106**	**156**
Mitsubishi Materials	NR	0	0	0	0	0	**0**	NR	0	0	0	0	0	**0**	**0**
MMG	3	2	1	1	2	NR	**9**	14	4	4	0	0	NR	**22**	**31**
Newcrest Mining	NR	0	1	1	0	1	**3**	7	4	3	2	4	NR	**20**	**23**
Newmont	0	0	0	0	0	NR	**0**	1	0	0	0	0	NR	**1**	**1**
Polyus	0	0	0	0	0	NR	**0**	NR	NR	NR	NR	NR	NR	**0**	**0**
Rio Tinto	5	5	6	8	14	NR	**38**	8	12	8	5	8	NR	**41**	**79**
South32	NR	NR	NR	2	1	1	**4**	NR	NR	NR	NR	0	0	**0**	**4**
SMM	NR	0	0	0	4	3	**7**	NR	0	0	0	1	1	**2**	**9**
Teck	0	0	0	0	0	NR	**0**	1	1	11	2	3	NR	**18**	**18**
Vale	0	0	0	0	0	NR	**0**	6	1	0	1	1	NR	**9**	**9**

Table 2: Licence to Operate Reference in Annual Reports Over a Five-Year Period

Looking at the table 2 above, 71% of the companies mention a “licence to operate” more than once in either their annual integrated or sustainability reports. In total a “licence to operate” has been mentioned a total of eight hundred and twelve times throughout the five-year period. This number is evenly distributed between the two types of reports, which demonstrated the importance of the licence to operate reference, as companies include it in their annual reports. There were however, seven companies that referred to a “licence to operate” once or not at all. The headquarters of these seven companies is in the United States of America (Freeport-McMoRan and Newmont), Japan (JX Nippon and Mitsubishi Materials), Chile (Codelco), Norway (Hydro) and Russia (Polyus). This can be an indication that these countries are less concerned about an SLO and everything that it demands. On the other end of the side, companies with headquarters in South Africa, United Kingdom and Australia contribute 40%, 35%, and 12% of the “licence to operate” reference respectively.

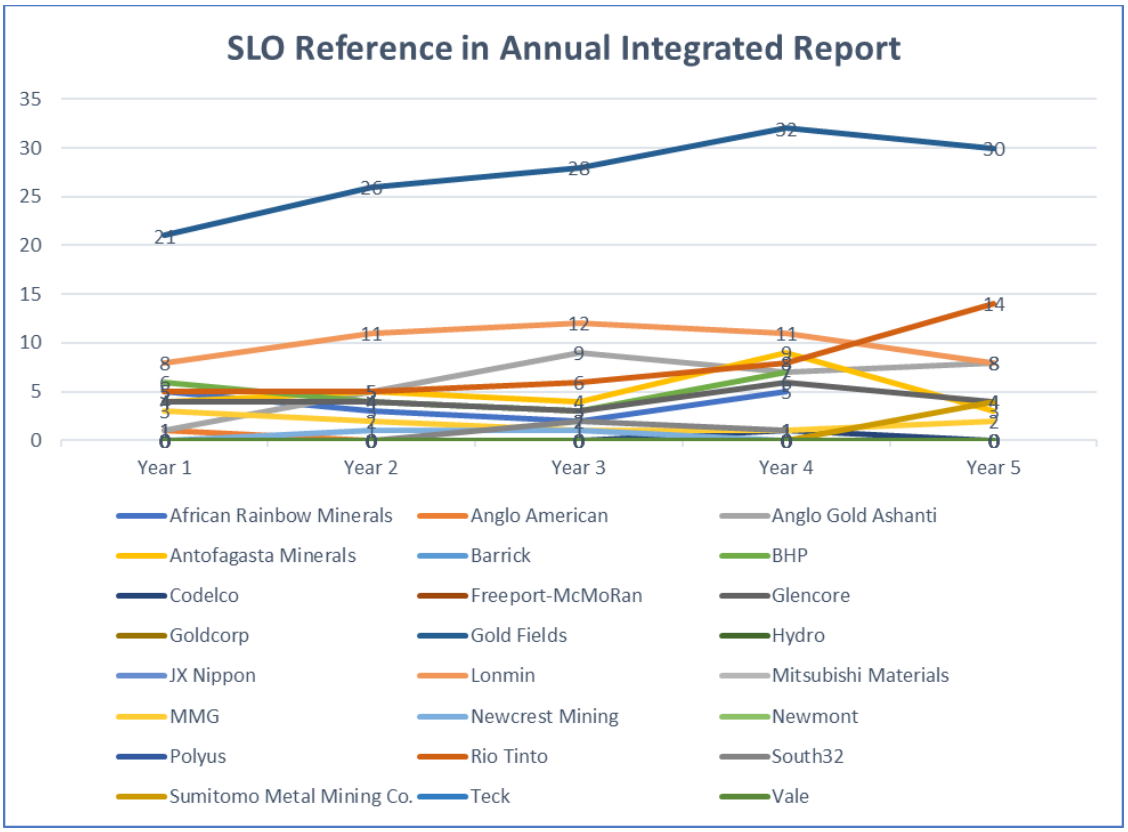


Figure 6: Licence to Operate Reference in Annual Integrated Report

Looking at the “licence to operate” reference in the annual integrated reports, Goldfields is the exception to the sample as they referenced an SLO over twenty times every year. What is important to note is that over time, the number of times “licence to operate” has been referenced every year has increased. Year 1: 58, Year 2: 66, Year 3: 71, Year 4: 88, and Year 5: 99. The final total is 382 times.

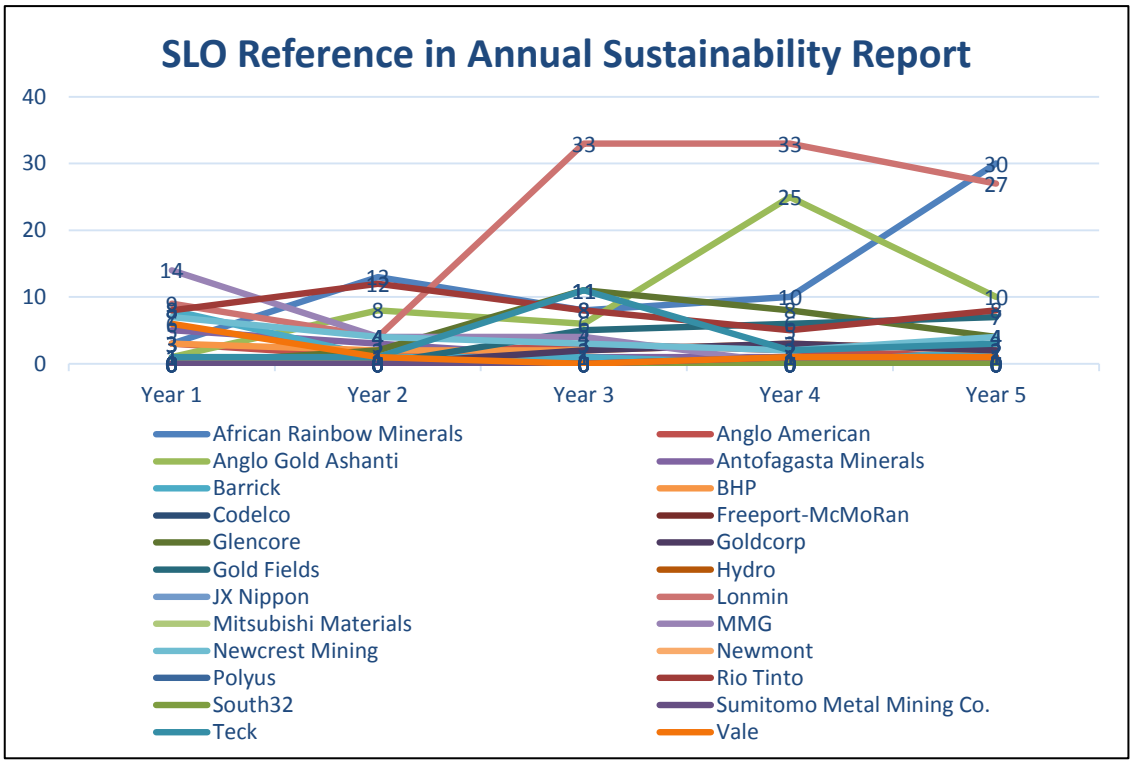


Figure 7: Licence to Operate Reference in Annual Sustainability Report

Looking at the “licence to operate” reference in the annual sustainability reports, Lonmin, African Rainbow Minerals and Anglo Gold Ashanti referenced “licence to operate” the most times. As was the trend with the annual integrated report, companies increased their reference to “licence to operate” over the time. Year 1: 69, Year 2: 56, Year 3: 98, Year 4: 102, and Year 5: 102. The final total is 427 times. The “licence to operate” reference is an important step in answering the first question as referral to the term provides a good indicator of companies acknowledging its importance. What has been identified as a common trend is that the term “licence to operate”, has been included in both annual integrated reports and sustainability reports. It is in the sustainability reports that “licence to

operate” has been referenced on more occasions, as companies use this report to promote their social impact in greater detail.

4.2.2 Local community acknowledgment

One of the most important aspects of obtaining an SLO is the relationship companies have with their local communities. It has been emphasised is how important the role of the local communities is in each of the site operations. Companies that are transparent and engage with the communities can achieve an SLO more easily. Communities that feel that their best interests are taken into consideration form trust and credibility in the company.

Table 3 tabulates the results of the company’s reference to the local communities across a five-year period in both the annual integrated and sustainability reports.

Company	Annual Integrated Report							Annual Sustainability Report							Grand Total
	2012	2013	2014	2015	2016	2017	Total	2012	2013	2014	2015	2016	2017	Total	
ARM	NR	97	92	114	110	73	**486**	NR	217	236	199	240	222	**1114**	**1600**
Anglo American	102	115	59	55	74	NR	**405**	197	203	147	192	180	NR	**919**	**1324**
Anglo Gold Ashanti	73	111	122	147	155	NR	**608**	166	254	107	228	201	NR	**956**	**1564**
Antofagasta Minerals	29	27	37	46	39	NR	**178**	54	47	37	50	58	NR	**246**	**424**
Barrick	21	7	10	11	9	NR	**58**	152	170	190	162	165	NR	**839**	**897**
BHP	NR	55	66	54	57	52	**284**	NR	88	114	109	98	60	**469**	**753**
Codelco	0	1	28	23	13	NR	**65**	NR	NR	NR	13	NR	NR	**13**	**78**
Freeport-McMoRan	6	7	8	4	5	NR	**30**	35	39	36	38	26	NR	**174**	**204**
Glencore	23	23	35	41	41	NR	**163**	62	77	123	117	114	NR	**493**	**656**
Goldcorp	9	11	25	8	3	NR	**56**	18	7	156	165	194	NR	**540**	**596**
Gold Fields	84	138	93	129	117	NR	**561**	12	0	31	30	39	NR	**112**	**673**
Hydro	NR	16	25	26	28	NR	**95**	NR	NR	NR	NR	NR	NR	**0**	**95**
JX Nippon	1	2	0	0	10	NR	**13**	NR	4	13	12	28	26	**83**	**96**
Lonmin	30	53	47	43	48	NR	**221**	20	21	78	107	112	NR	**338**	**559**
Mitsubishi Materials	NR	0	0	0	0	2	**2**	NR	29	16	14	16	19	**94**	**96**
MMG	14	16	9	10	12	NR	**61**	88	73	84	61	64	NR	**370**	**431**
Newcrest Mining	NR	20	20	12	13	26	**91**	78	57	71	50	70	NR	**326**	**417**
Newmont	13	12	15	13	9	NR	**62**	NR	NR	NR	NR	NR	NR	**0**	**62**
Polyus	5	47	48	56	40	NR	**196**	NR	NR	NR	NR	NR	NR	**0**	**196**
Rio Tinto	40	53	44	46	55	NR	**238**	75	100	142	91	130	NR	**538**	**776**
South32	NR	NR	NR	42	39	14	**95**	NR	NR	NR	NR	25	47	**72**	**167**
SMM	NR	2	0	3	51	66	**122**	NR	70	59	79	12	15	**235**	**357**
Teck	22	20	7	1	5	NR	**55**	142	144	201	229	232	NR	**948**	**1003**
Vale	9	7	8	15	20	NR	**59**	117	118	68	80	117	NR	**500**	**559**

Table 3: Local Community Reference in Annual Reports Over a Five-Year Period

As it can be seen in the table 3, the ICMM member companies place a lot of emphasis on the communities surrounding their operations. All companies mention communities in both their annual integrated and sustainability reports. However, it is evident that it is in the sustainability reports where companies identify local communities the most. The sustainability report focuses on a company's progress towards social impact and refers to the communities surrounding their operations. There are four companies that reference their communities over a thousand times throughout the five-year period which illustrates its importance for their operations, namely: ARM; Anglo American; Anglo Gold Ashanti; and Teck.

The number of references made to local communities has increased on a year by year basis and emphasises the importance the ICMM member companies have placed on their relationship with the community. All companies indicated that they are actively engaged with their communities and focus on ensuring their interests are taken into consideration throughout their operation life cycle.

4.2.3 Disclosure and Transparency acknowledgment

The granting of an SLO is determined by how communities and stakeholders view the operations of a company in that it requires sufficient trust, legitimacy and the consent of those affected. Transparency is one of the factors that companies have a direct impact on attaining their SLO. The granting of an SLO, can only be achieved through communication with local communities and stakeholders. This is a significant requirement of an SLO, as communities request to be informed about company decisions and this provides an opportunity for the community to feel included in the company's operations (Morrison, 2014).

Table 4 tabulates the results of the company's reference to the disclosure and transparency across a five-year period in both the annual integrated and sustainability reports.

Company		Annual Integrated Report							Annual Sustainability Report							Grand Total
		2012	2013	2014	2015	2016	2017	Total	2012	2013	2014	2015	2016	2017	Total	
ARM	**Disclosure**	NR	46	46	32	37	14	**175**	NR	80	71	88	82	119	**440**	615
	Transparency	NR	13	17	16	16	6	**68**	NR	20	24	17	21	11	**93**	161
Anglo American	**Disclosure**	51	78	65	78	100	NR	**372**	8	6	24	6	12	NR	**56**	428
	Transparency	5	4	3	5	6	NR	**23**	31	26	26	19	27	NR	**129**	152
Anglo Gold Ashanti	**Disclosure**	11	4	5	19	11	NR	**50**	7	6	1	4	9	NR	**27**	77
	Transparency	1	8	10	17	20	NR	**56**	10	18	7	18	16	NR	**69**	125
Antofagasta Minerals	**Disclosure**	42	50	45	66	75	NR	**278**	12	15	6	8	8	NR	**49**	327
	Transparency	9	13	10	15	20	NR	**67**	4	3	5	21	18	NR	**51**	118
Barrick	**Disclosure**	47	50	49	37	42	NR	**225**	38	33	25	16	28	NR	**140**	365
	Transparency	7	1	5	4	7	NR	**24**	27	36	48	44	46	NR	**201**	225
BHP	**Disclosure**	NR	138	147	171	193	199	**848**	NR	13	13	25	35	17	**103**	951
	Transparency	NR	29	28	28	22	24	**131**	NR	20	29	36	43	26	**154**	285
Codelco	**Disclosure**	14	16	12	13	5	NR	**60**	NR	NR	NR	5	NR	NR	**5**	65
	Transparency	0	0	20	77	62	NR	**159**	NR	NR	NR	27	NR	NR	**27**	186
Freeport-McMoRan	**Disclosure**	16	12	11	13	18	NR	**70**	5	5	5	4	4	NR	**23**	93
	Transparency	1	0	1	1	1	NR	**4**	12	8	9	9	12	NR	**50**	54
Glencore	**Disclosure**	24	46	37	41	63	NR	**211**	11	18	8	9	8	NR	**54**	265
	Transparency	6	8	7	10	12	NR	**43**	13	14	29	26	19	NR	**101**	144
Goldcorp	**Disclosure**	28	45	31	33	28	NR	**165**	0	0	38	35	35	NR	**108**	273
	Transparency	4	1	5	1	0	NR	**11**	5	1	32	36	37	NR	**111**	122
Gold Fields	**Disclosure**	16	20	13	12	9	NR	**70**	24	0	67	100	106	NR	**297**	367
	Transparency	104	20	6	8	13	NR	**151**	3	0	10	8	9	NR	**30**	181
Hydro	**Disclosure**	NR	32	37	39	50	NR	**158**	NR	NR	NR	NR	NR	NR	**0**	158
	Transparency	NR	17	21	16	36	NR	**90**	NR	NR	NR	NR	NR	NR	**0**	90
JX Nippon	**Disclosure**	27	24	27	25	27	NR	**130**	NR	21	18	24	35	19	**117**	247
	Transparency	9	5	8	7	12	NR	**41**	NR	7	8	10	10	16	**51**	92
Lonmin	**Disclosure**	44	55	72	67	68	NR	**306**	0	0	8	16	18	NR	**42**	348

	Transparency	10	11	10	10	11	NR	**52**	1	0	6	11	8	NR	**26**	78
Mitsubishi Materials	**Disclosure**	NR	6	7	6	6	6	**31**	NR	36	35	37	33	41	**182**	213
	Transparency	NR	2	2	2	2	2	**10**	NR	11	6	7	9	11	**44**	54
MMG	**Disclosure**	45	45	43	62	62	NR	**257**	12	11	7	6	5	NR	**41**	298
	Transparency	3	2	1	2	2	NR	**10**	22	19	15	4	8	NR	**68**	78
Newcrest Mining	**Disclosure**	NR	24	57	23	23	29	**156**	45	13	16	26	4	NR	**104**	260
	Transparency	NR	3	3	4	3	6	**19**	6	13	23	17	24	NR	**83**	102
Newmont	**Disclosure**	32	31	28	31	1	NR	**123**	2	1	0	1	170	NR	**174**	297
	Transparency	3	4	4	5	4	NR	**20**	0	0	0	0	29	NR	**29**	49
Polyus	**Disclosure**	22	63	67	63	56	NR	**271**	NR	NR	NR	NR	NR	NR	**0**	271
	Transparency	2	15	21	22	21	NR	**81**	NR	NR	NR	NR	NR	NR	**0**	81
Rio Tinto	**Disclosure**	90	104	95	110	125	NR	**524**	10	10	19	16	17	NR	**72**	596
	Transparency	15	10	12	12	12	NR	**61**	28	26	38	19	21	NR	**132**	193
South32	**Disclosure**	NR	NR	NR	53	45	37	**135**	NR	NR	NR	NR	2	3	**5**	140
	Transparency	NR	NR	NR	20	21	14	**55**	NR	NR	NR	NR	1	9	**10**	65
SMM	**Disclosure**	NR	6	4	6	23	46	**85**	N/A	37	34	26	1	8	**106**	191
	Transparency	NR	1	0	2	14	16	**33**	N/A	18	16	13	0	0	**47**	80
Teck	**Disclosure**	29	50	27	34	34	NR	**174**	28	26	39	15	19	NR	**127**	301
	Transparency	1	1	1	1	1	NR	**5**	10	16	13	21	32	NR	**92**	97
Vale	**Disclosure**	43	44	40	41	47	NR	**215**	25	20	51	12	16	NR	**124**	339
	Transparency	4	3	2	2	2	NR	**13**	13	25	24	22	27	NR	**111**	124
		765	**1160**	**1162**	**1362**	**1468**	**399**	**6316**	**412**	**632**	**853**	**864**	**1064**	**280**	**4105**	**10421**

Table 4: Disclosure and Transparency Reference in Annual Reports Over a Five-Year Period

Table 4 provides a summary of the number of times disclosure and transparency were mentioned throughout the annual integrated and sustainability reports. Looking at the number of references over the five-year period, companies have referred to both transparency and disclosure more times year on year. The results from 2017 are lower due to many of the companies not publishing their results yet. In both annual integrated and sustainability reports, the total number of references have doubled over a five-year period.

The findings identify that all companies refer to disclosure and transparency throughout their reports and this emphasises its importance to their operations. These two terms create trust between the communities and the companies, which in turn assists in being granted an SLO. All the companies referred to having open, honest or transparent relationships with the community and stakeholders, regardless of their reported perception regarding the concept of an SLO. One of the final aspects of obtaining an SLO is how a company discloses information and ensures that a credible relationship is present between the communities, stakeholders and the company.

4.2.4 SLO measurement within the ICMM member companies

The previous tables have provided an indication of how often certain terms were used throughout the reporting period. However, this does not provide a full understanding of how companies achieve their SLO. Below, table 5 goes into greater detail into how the companies report on how they achieve their SLO and what, measures they have in place to maintain their SLO.

Company	SLO Measurement
African Rainbow Minerals (ARM)	ARM have a section in their annual sustainability report that provides details into how they maintain their Social Licence to Operate. They have also mapped out the social licence to the ICMM Sustainable Development Principles, UNGC Principles and GRI Standards. Material issues regarding the SLOs have been identified: ARM's state that their social and relationship capital depends on building trust with their key

	stakeholders. Finally, ARM have an active approach towards engagements with their local communities and stakeholders which addresses the ESG issues (African Rainbow Minerals, 2017).
Anglo American (AA)	AA indicate that their licence to operate is dependent on a positive relationship with their local communities and stakeholders. They achieve this through identifying the needs and perspectives of the local stakeholders and being transparent in their operations. This commitment to the communities where they operate drives their approach to sustainability in areas that include socio-economic development, responsible business and transparency, health and infrastructure provision. AA maintain that they draw on their strategic NGO partnerships and trade associations to promote best practice and encourage multi-stakeholder approaches to solving difficult challenges. Ensuring that they avoid or minimise any harm that their operations may cause, while at the same time building inclusivity and growing the socio-economic benefits for communities, is an investment in their shared future. While each operation has its unique social characteristics, typical issues of concern among host communities relate to environmental impacts, contractor management and a perception of limited opportunities for local businesses. Negative effects can trigger stakeholder opposition, resulting in project delays, disruption to their operations and reputational damage (Anglo American, 2016).
Anglo Gold Ashanti (AGS)	Sustainable Development remains core to AGS's business strategy. As reflected in their five strategic focus areas, their attention to safety, people and sustainability provides a foundation which enables success in the other four areas. They believe that superior sustainable development performance not only gives them their social licence to operate, but also drives better business performance. Important progress continues to be made in creating shared value through local socio-economic development. AGS summarize that projects outline the potential synergy between the mining and agricultural sectors and signal a shift from a traditional sustainable development approach focusing on small income

	generating projects to one with the potential for large-scale commercialisation of agriculture. Engaging in these projects – with communities actively involved in their co-design – leverages off the company's competencies of land and water management and involves partners with specialist agricultural capability. In the event of their long-term success, the possibility of new understanding of the concept of alternative livelihoods is created. Beyond establishing alternative jobs, they create the potential for alternative industries which would truly drive community resilience in line with local and national development objectives. Success in these projects provide the basis for scaling such activities to other parts of the business, in a way that meets their circumstances (Anglo Gold Ashanti, 2016).
Antofagasta Minerals (AM)	AM indicate that they have transparent social policies in place and conduct regular engagement with their local communities, which allows potential conflicts to be mitigated. This allows AM to obtain an SLO for its operations and they can maintain the relationship through the positive contact with the local communities. AM has established devoted teams at each of its operations to ensure that relationships with each of their local communities are maintained and that trust and disclosure is obtained throughout the mining lifecycle. AM also seeks to contribute towards the development of their local communities through human capital development, which includes elements of education, training and the hiring of individuals in the local community (Antofagasta Minerals, 2016).
Barrick	Barrick recognise that the local communities have the authority to grant them their SLO. They have indicated that they are able to obtain their SLO through positive engagement with the local community. Barrick are committed to ensure that all the risks are identified and that these are addressed through mitigating practices to ensure that all concerns, needs, and interests of the local community are met. Barrick can implement this through the creation of a Community Relations Management System (CRMS). This system provides direction on how to engage with the community and identify what the requirements are to establish an

	effective Stakeholder Engagement Plan, which will strengthen the relationship with the local community. Barrick indicate that the most important aspects of their operations is that the engagement with the local community will include trust, respect, transparency, and mutual an understanding of the purpose of the operations (Barrick Gold Corporation, 2016).
BHP	BHP indicate in their annual report that they aware of the ESG impacts that their operations have on their people, assets, company reputation, and their licence to operate. BHP have made specific reference to the SDGs and indicate that they responsibility contribute towards the 2030 agenda of sustainable development. BHP note that their licence to operate is a privilege granted by the local community and this drives them to contribute to the development of country and the local community. To achieve this, BHP identify that they provide development through creating job opportunities, develop infrastructure, and obtain local goods and services to boost the economy (BHP, 2017).
Codelco	Codelco continue to develop and implement a new approach for occupational health and safety, environment and community development that looks to achieve the following goals: protect everyone from harm in the workplace, eliminate fatalities and prevent work-related diseases; protect the environment, close the socio-environmental gaps at operations and projects, and develop communities near to their operations, putting into practice a new community engagement model. In 2015, Codelco consolidated a new approach to community engagement, including their social licence to operate, sustainable and inclusive mining. Their main initiatives focused on creating working groups, implementing investment projects and generating information for the community. Codelco provide a summary of the engagements they have on an annual basis with direct workers, contractors, workers families, trade union, national community, national authorities, neighboring communities, NGO's, customers and the media (Codelco, 2015).

Freeport-McMoRan (FM)	FM do not mention a social licence to operate throughout their reports, however focus on community engagement throughout their reports. FM indicate that they have site-specific human rights programs and systems in place which is aligned to their Human Rights Policy, local regulations, and the voluntary principles of the International Labour Organisation. FM state that they engage with their local communities and stakeholders throughout the lifecycle of the mine. They identify that the most important aspect to achieve this is through a relationship of trust. This is further detailed within their Community Policy (Freeport-McMoran, 2016).
Glencore	Glencore indicate that they can obtain an SLO through the implementation of their sustainability strategy, which is reviewed annually. Their sustainability strategy is arranged into four areas: health; safety; environment; community and human rights. Having this strategy in place assists Glencore to meet local requirements, obtain international best practice certifications, and maintain their SLO. Finally, Glencore stated that they engage with the local communities and stakeholders to ensure that a positive relationship is created that minimises their negative social impact, create additional value to the local communities, and to maintain their SLO (Glencore, 2016).
Goldcorp	Goldcorp indicate in their annual reports that they have obtained an SLO, which goes beyond country and sector regulations. The SLO requires Goldcorp to have an understanding and mitigate key issues that their stakeholders encounter, which creates trust and builds a positive relationship which provides an opportunity to create mutual benefits for both the company and local stakeholders. There is an increased requirement from local governments to companies to promote a greater level of sustainability in its operations, which drives sustainable development. Goldcorp have consistently heard that their local communities expect them to invest in local, sustainable development, and to contribute to the local community. Goldcorp therefore ensure that they manage the expectations of the local community and deliver on their promises to ensure that their SLO is maintained (Goldcorp, 2016).

Gold Fields (GF)	GF recognise that their mining operations have a substantial impact on the local communities, the land they mine in and social conditions. Identifying the concerns of the local community is an important aspect to manage these risks accordingly. GF have several polices in place to define their approach to societal issues (which includes specific reference to indigenous peoples), human rights and stakeholder engagement. Like other extractive companies, GF' potential social impacts included both local communities and the greater society. GF also have a grievance mechanism in place which provides the local community to raise any concerns or issues that they have against the company, which will maintain their SLO (Gold Fields, 2016).
Hydro	Hydro do not mention a social licence to operate throughout their reports, however focus on community engagement throughout. Hydro focuses on being a positive contributor to those surrounding the mining projects. They identify that having an open and honest relationship is valuable to ensuring a positive relationship is in place. To achieve this relationship, Hydro hold regular communications with their local communities (Hydro, 2016).
JX Nippon	JX Nippon do not mention a social licence to operate throughout their reports, however focus on community engagement throughout their annual reports. They highlight that upholding positive relations with their local communities allows them to become good corporate citizens. Through corporate citizenship activities and interchanges rooted in the local community at each of their operating project sites across the globe, they can actively contribute to the development of the community. JX Nippon have established a Citizenship Committee which designs action plans that focus on their social contributions and evaluates the impact of their activities within the community (JX Nippon, 2017).
Lonmin	Lonmin believe that success on an operational and societal level can only be achieved through local community and stakeholder commitment which is built on robust and productive relationships with their local communities. There are four broad focus areas through which Lonmin

	strengthen their social licence to operate: 1) Regular formal and informal engagements with stakeholders in local communities, which include engagements with government representatives, allow them to understand stakeholders' expectations of Lonmin and communicate the current position and delivery status of the Company; 2) Their investments in local communities consist of the most important socio-economic challenges. These include improving education and health, developing local suppliers and assistance in improving basic services and social infrastructure; 3) Addressing the challenges evident in local communities requires a broader partnership approach that includes the Company, the community, local and national government, and the various companies operating in the area; 4) Lonmin's Code of Business Ethics commits the Company, its employees and suppliers to ethical standards of social and business practices. Lonmin provides sustainability risks and opportunities that apply to their social licence to operate and provide references to further information regarding their management and mitigation (Lonmin, 2016).
Mitsubishi Materials (MM)	MM do not mention a social licence to operate throughout their reports, however focus on community engagement throughout their annual reports. MM seek to meet the expectations of their local communities and stakeholders, and actively contribute to the sustainable development of society. MM have a code of conduct in place that mentions they will build and maintain a positive relationship with local stakeholders, where their operations have an impact. Finally, they highlight that they will engage with the local stakeholders to promote social impact, which includes culture, education and welfare (Mitsubishi Materials, 2017).
MMG	MMG state that they place a significant emphasis on their ESG responsibilities, which provides them with the opportunity to obtain and maintain an SLO. MMG emphasize that they maintain their SLO through engaging directly with the local communities with regards to their safety, environmental impact, corporate governance transparency and ensuring community engagement is a continuous action. MMG made specific reference that their SLO is achieved through obtaining local stakeholder

	support for their operations. MMG focuses on building relationships that is based on trust, which is established through being transparent and disclosing relevant information to the local communities (MMG, 2016).
Newcrest Mining	Newcrest state that they have are able to obtain an SLO through an established, transparent and positive community relationship. They identify that their operations have both short-term and long-term effects on the communities surrounding their operations. They also highlight that this creates an opportunity to create mutual benefits for both the company and the local community. Newcrest have a Communities Policy in place, which provides guidance towards establishing a positive relationship with the community and delivering on their promises (Newcrest, 2016).
Newmont	Newmont do not mention a social licence to operate throughout their reports, however focus on community engagement throughout their annual reports. Newmont state that one of their key focus areas is by promoting sustainable development to their employees, local communities and external stakeholders. They indicate that they work with the communities to create a sense of empowerment and create value for both the company and the community. This takes place through all phases of the project life-cycle and is essential in creating trust and credibility (Newmont, 2016).
Polyus	Polyus do not mention a social licence to operate throughout their reports, however focus on community engagement throughout their annual reports. Examples of this include Polyus stating that they are fully committed to creating trust and building strong relationships with their local communities. They recognise that their operations have an impact of the communities surrounding their operations and strive to achieve a positive impact throughout its activities. The Group has three policies in place that can contribute towards a positive engagement: Stakeholder Engagement Policy, Human Rights Policy, and the Policy on Charity, Sponsorship and Donations (Polyus, 2016).

Rio Tinto	Rio Tinto identify that their operations have inherent risks associated with the sector with regards to ESG issues. They state that managing and mitigating these issues are crucial for them to maintain their SLO. Rio Tinto recognise that they need to engage with their local communities and stakeholders to address their concerns. They indicate that this needs to take place from the beginning of the mining life-cycle through to mine closure. Achieving this community engagement can create a successful relationship and ensure that their SLO is maintained and can deliver long-term success for the company (Rio Tinto, 2016).
South32	Becoming a trusted, valued and genuine part of the communities South32 work in is about creating several levels of connection and investing substantially in each of them. The first step is encouraging their people to contribute to their community and giving them the time and resources to do that. Most of their people are usually drawn from the local communities, but those from other places are usually as eager to contribute as those born within walking distance. The next step is to ensure that South32 is ready and willing to provide support whenever the local communities are in need. They want the people who live near operations to know that they're good neighbours who will do whatever they can to help. The third step is developing long-term projects that aim to deliver positive outcomes for the entire community, for many years to come. South32 try to create a dialogue with people at every level of the communities they work in, so they can figure out what is in everybody's best interests. At a global level, South32 engage with their stakeholders throughout the year and at their Annual General Meeting. They publish information about their operations and planned activities on their website, as well as through their Annual Report, market announcements and conferences. Along with simply listening and talking, they employ more scientific means of gathering feedback of their performance. This assists in gauging the effectiveness of their approach and their level of engagement, so they can continually improve their community relationships (South 32, 2017).

Sumitomo Metal Mining (SMM)	SMM do not mention a social licence to operate throughout their reports, however focus on community engagement throughout their annual reports. SMM disclose in their annual reports how they contribute to their local communities and the society. The key contributions include: community investment; the hiring of the local community members; the procurement of services and products locally; and management of the closure of mines which rehabilitate the area to be used again. Along with these contributions, SMM seek to create a positive relationship with the local community and contribute sustainable development. Through this relationship, SMM implement strategies that look to integrate the community in their operations. SMM also look to promote CSR activities which plays a role of creating extra value and improving the company's reputation (Sumitomo Metal Mining, 2017).
Teck	Teck believe that ensuring that there is trust and consistent engagement with the local community can assist in mitigating the negative impacts of their operations and contribute to the granting of an SLO. Teck highlighted the engagement they undertook during the year under review. These engagements focused on the mutual benefits that can be achieved and mitigating the risks associated with their mining operations. Teck's SLO is dependent on their ability to meet legal compliance requirements and create a benefit to both local shareholders and communities. They have systems in place to continuously monitor and manage these ESG risks that form part of the compliance requirements. This is conducted by engaging directly with the government, regulators and communities to ensure the relevant approvals are achieved (Teck, 2016).
Vale	Vale indicate that for them to be a sustainable operator, they must work consciously and responsibly across the life cycle of their projects, from their conception, through their implementation and, operation, to the closure of their activities, respecting the local culture where they operate. Vale will work to develop a sustainable development perspective with respect to Vale's products and services and their value chains. Their commitments in the areas of health, safety and environmental, social and

	economic responsibility are: To achieve zero harm; generating organizational learning and promoting active genuine care inside and outside Vale; to meet legal requirements and continuously improve their processes and products, seeking increased efficiency in the use of natural resources and ecosystem services; to manage risks and impacts, adopting elimination, mitigation, compensation and monitoring measures; to promote a healthy, safe and respectful working environment; to positively contribute to the evolution of their employees' and service providers' performance; to pursue technological innovation through research and development of new technologies; and to work with responsibility, ethic and transparency, engaging with their stakeholders and fulfilling their commitments to obtain and licence to operate (Vale, 2016).

Table 5: SLO application by each ICMM member company

As can be seen in table 5, most of companies refer to their SLO throughout the mining process. Aspects such as local communities, disclosure, and transparency are referenced by all companies and these are important aspects to obtaining an SLO. There were however six companies of the twenty-four that do not mention their involvement of obtaining an SLO. Companies include: Freeport-McMoRan, Hydro, JX Nippon, Mitsubishi Materials, Newmont, and Polyus. It is interesting to note that of these six companies, most of their operations are in: Japan, Russia and USA. However, they do all refer to being transparent and how they engage with local communities. They seek to improve the social development in their areas of operations and look for social upliftment. These attributes are aligned to those companies that mention their SLO, and it can be expected that if they were to obtain an SLO, it would be a basic procedure to follow.

The ICMM member companies align their operations to the requirements of an SLO. All the companies indicated their social impact in their latest reports and demonstrate how they performed over the given period. This shows the progress of the past couple of years that companies have made to ensure social risks are

mitigated and local community's interests are taken into consideration. While there are some companies that report specifically on their SLO, all the companies provide a great level of perceived community engagement.

4.2.5 Measuring the SLO using The Pyramid Model

As described earlier in the literature review chapter, the pyramid model identifies four levels of the SLO, and each level is inversely related to the social risks that a mining company encounters. The first/lowest level of SLO is withheld or withdrawn. This focuses on the restricted access to essential resources that a mining company requires to operate. Without the access to these resources, companies cannot begin operations and extract the raw materials. To achieve this, companies require the finance to conduct their operations, licences from a legal and governmental perspective, infrastructure around the mining site and finally sourcing miners to conduct the operations.

All the ICMM member companies focus on these elements before conducting their operations. Once these elements are in place, the focus shifts to the local communities and obtaining an SLO. If these elements are not achieved, then the company cannot begin its operations and the project is withheld or even withdrawn.

After the first level is in place, a company moves onto the second level of SLO, which is based on acceptance. This second level forms the basis of a company addressing their SLO and starting the engagement with the local communities and stakeholders. The key is for mining companies to establish credibility among the local community and then the SLO can move up a level to approval. This is conducted by building a relationship with the local community and stakeholders by being transparent and disclosing information about their operations. Over time, credibility can be turned into trust and this would provide a low level of social risk to the project. The ICMM member companies have referred and disclosed their engagement and transparency towards the local community. Each company has provided their approach to engagement with the communities and the majority have stated the positive relations they have with the communities.

The third level surrounds the actual approval of the SLO obtained by a mining company. Both level one and level two have been achieved and the company have acquired all the approvals required to conduct operations and established the base for an SLO. The third level is about how the communities view the company compared to what they been engaged about. Questions such as: Is the company keeping up to their agreements with the communities? Have all the challenges been identified and mitigated? Is the company disclosing all information and being transparent? Finally, is the company delivering on their promises they made to the communities? According to the ICMM member company reports, they are striving to ensure that their promises and engagements are kept, and relations remain positive.

The fourth and highest level of the pyramid model is co-ownership between the mining company and the local community. At this level, total trust is established, and the community plays an active role in the mining operations. All risks are mitigated, and the companies are providing sustainable development to the community. The ICMM member companies are all at this level, with some having more success than others. Examples of the sustainable development initiatives are presented in the various reports and companies spend a great deal of time and money on these initiatives.

It has been indicated that all twenty-four companies recognise their role in society and look to provide action in uplifting their local communities. They ensure that they have an open relationship, that is transparent, and processes are disclosed on an on-going basis. This provides a sense of legitimacy, credibility and trust towards the companies and is aligned with the ICMM principles. Companies have emphasised their social contribution and ways that they have helped developed society. The results of how often the different terms have been referenced over the years, is a clear indication that companies are approaching social aspects of their operations alongside the financial gains. There is a trend that can be seen where by companies are mentioning these terms more and more over the years and all the latest reports that the companies have produced highlight the improvement and acknowledgment of improving social performance.

4.3 Results pertaining to Research Question 2

How well do the ICCM member companies adhere to the ten Principles and does this align with their SLO and the United Nations Sustainable Development Goals?

As stated earlier in the research, the ICMM provide guidance for mining companies in improving their sustainable development performance. For mining companies to become a member, they are required to publicly commit to the ICMM ten principles of sustainable development on an annual basis. It was discussed previously that the ten principles can assist companies become aligned to obtaining an SLO and to the United Nations 2030 agenda through the SDGs. The guidance provides practical advice to companies to ensure the risks are mitigated and the social and community development is taken into consideration (International Council on Mining & Metals, 2017).

Company	Annual Integrated Report							Annual Sustainability Report							Grand Total
	2012	2013	2014	2015	2016	2017	Total	2012	2013	2014	2015	2016	2017	Total	
ARM	NR	16	14	9	10	3	**52**	NR	74	60	56	63	77	**330**	**382**
Anglo American	0	1	0	1	2	NR	**4**	16	16	22	12	46	NR	**112**	**116**
Anglo Gold Ashanti	2	3	5	2	1	NR	**13**	9	6	3	3	12	NR	**33**	**46**
Antofagasta Minerals	0	8	16	14	9	NR	**47**	1	11	21	36	27	NR	**96**	**143**
Barrick	0	2	0	0	3	NR	**5**	34	37	36	51	164	NR	**322**	**327**
BHP	NR	11	10	5	1	2	**29**	NR	15	14	17	7	7	**60**	**89**
Codelco	0	1	1	0	0	NR	**2**	NR	NR	NR	133	NR	NR	**133**	**135**
Freeport-McMoRan	0	0	0	0	2	NR	**2**	16	21	18	22	23	NR	**100**	**102**
Glencore	0	0	4	0	1	NR	**5**	2	11	46	27	23	NR	**109**	**114**
Goldcorp	0	0	0	0	0	NR	**0**	4	1	23	26	23	NR	**77**	**77**
Gold Fields	30	43	33	30	40	NR	**176**	5	0	13	18	77	NR	**113**	**289**
Hydro	NR	15	14	11	14	NR	**54**	N/A	NR	NR	NR	NR	NR	**0**	**54**
JX Nippon	NR	0	0	0	4	NR	**4**	N/A	4	0	0	3	19	**26**	**30**
Lonmin	5	0	1	0	3	NR	**9**	2	0	43	47	40	NR	**132**	**141**
Mitsubishi Materials	NR	0	0	0	0	0	**0**	N/A	19	21	22	21	20	**103**	**103**
`MMG	10	5	4	0	6	NR	**25**	67	58	35	23	25	NR	**208**	**233**
Newcrest Mining	NR	0	0	0	0	0	**0**	4	9	16	16	9	NR	**54**	**54**
Newmont	3	4	4	4	4	NR	**19**	0	0	0	0	87	NR	**87**	**106**
Polyus	1	13	28	72	59	NR	**173**	NR	NR	NR	NR	NR	NR	**0**	**173**
Rio Tinto	9	7	9	9	15	NR	**49**	7	25	27	22	52	NR	**133**	**182**
South32	NR	NR	NR	7	15	7	**29**	NR	NR	NR	NR	2	4	**6**	**35**
SMM	NR	0	0	0	10	19	**29**	NR	14	16	17	1	1	**49**	**78**
Teck	0	0	0	0	0	NR	**0**	36	31	39	48	56	NR	**210**	**210**
Vale	0	0	0	0	0	NR	**0**	38	29	2	0	0	NR	**69**	**69**

Table 6: ICMM Reference in Annual Reports Over a Five-Year Period

Each of the company's annual integrated and sustainability reports were analysed to identify their reference to the ICMM. Table 6 provides an overview of the results of the company's reference to the ICMM across a five-year period in both the annual integrated and sustainability reports. This section of the research focussed on the amount of times the ICMM member companies refer to the ICMM. In total the ICMM was mentioned 3288 times across all the companies and over a five-year period. 78 percent was referred to in the sustainability report which focuses more on the company's social impact of their operations. The companies that referred to the ICMM the most include African Rainbow Minerals (382), Barrick (327) and Gold Fields (289).

While it is important that companies refer to the ICMM, it is more important to identify how the mining companies comply and adhere to the ICMM sustainable development principles. As mentioned previously, there are ten principles that member companies are required to comply with. The next section focusses on the companies' compliance with the principles and identify the specific practices they have in place to address each one.

Company	ICMM Membership
African Rainbow Minerals (ARM)	ARM state that they are an active participant at Council, Executive and Programme Committee levels in the ICMM. Their sustainable development initiatives are aligned with the ICMM's position statements and the ten principles. ARM provide a summary table which references where in the report each of the ten principles have been applied and implemented. Ibis ESG Assurance (Pty) Ltd conducted an assurance analysis on ARM's Sustainability Report, which concluded that ARM is compliant with the ICMM ten principles (African Rainbow Minerals, 2017).
Anglo American	Anglo American indicate that they adhere to the ten ICMM principles and state that they are also signatories to ICMM Position Statements on various issues that are critical to the mining sector. Anglo American provide a report annually on their alignment of their sustainability policies to ICMM's ten Sustainable Development Principles. This report identifies how each principle is implemented in their operations. KPMG were engaged to provide external assurance, and based on the procedures performed and evidence collected, they concluded that Anglo American has complied with the ICMM Sustainable Development Framework, principles and reporting commitments (Anglo American, 2016).
Anglo Gold Ashanti	AngloGold Ashanti state that they are a signatory of the UNGC and they provide a report that serves as the 2016 Communication on Progress. The report is also aligned with the Sustainable Development Framework of the ICMM, of which AngloGold Ashanti is a member. AngloGold Ashanti engaged Ernst & Young to perform an assurance engagement to report on whether the Sustainable Development Report 2016 complies with the ICMM Sustainable Development Framework. The external assurance was obtained, although AngloGold Ashanti do not disclose how they comply with the ICMM's ten principles or provide a separate report on these principles (Anglo Gold Ashanti, 2016).

Antofagasta Minerals (AM)	AM provides a ICMM principles contents index that references each of the ten principles and where it is linked to their annual report. They also provide a ICMM position statement linked to the relevant sections in the annual report. The AM annual sustainability report has been verified by PricewaterhouseCoopers, which includes their compliance with the principles of the ICMM (Antofagasta Minerals, 2016).
Barrick	Barrick produces a Global Reporting Initiative Standards report which contains adherence to the ICMM ten principles. Bureau Veritas North America (BVNA) was engaged by Barrick Gold Corporation to provide independent external assurance for Barrick's 2016 Responsibility Report. The objective was to provide external assurance with Barrick's performance and the ICMM's ten principles. BVNA confirmed that Barrick's operations are aligned to the ICMM ten principles (Barrick Gold Corporation, 2016).
BHP	KPMG have audited BHP based on the information obtained, and they confirmed that they were not aware of any material misstatements in the BHP Sustainability Report 2017 and the ICMM ten principles. Even though BHP has obtained external assurance, they do not disclose their adherence to the ICMM ten principles in their annuals or additional reports (BHP, 2017).
Codelco	Codelco appointed KPMG to conduct an external assurance of their annual sustainability report and compliance with the ICMM ten principles. Their findings concluded that Codelco is not aligned with the ICMM ten principles, however, in their annual sustainable report, Codelco provide a table disclosing their compliance with the ICMM ten principles. This is concerning as even though they report on their ICMM compliance, the actual details and implementation is not completed. Codelco should ensure that the new annual report addresses the non-compliance and any gaps be addressed (Codelco, 2016).

Freeport-McMoRan (FM)	Freeport-McMoRan implement the ICMM Sustainable Development Framework and continue to apply ICMM's ten Sustainable Development Principles in their operations. Corporate Integrity were appointed to obtain external assurance on FM's annual sustainably report and stated that nothing has come to their attention, which caused them to believe that the information reported by FM was uncompliant with the ICMM ten principles requirements (Freeport-McMoran, 2016).
Glencore	In 2014, Glencore were admitted to the ICMM and endorsed their sustainable development ten principles. Deloitte was appointed to conduct an audit on Glencore compliance with the ICMM ten principles and they passed the assessment. Glencore provide a table that summarizes its compliance with the ICMM sustainable development framework (Glencore, 2016).
Goldcorp	Goldcorp's annual sustainability report provides an overview the Groups compliance with each of the ICMM ten principles and provides a reference to how they comply. Ernst & Young was engaged to provide external assurance towards the ICMM ten principles and they concluded that nothing came to their attention that causes them to believe that the they are not in compliance with the ICMM ten principles (Goldcorp, 2016).
Gold Fields	Gold Fields provides details of their sustainable development framework, which is aligned to the ICMM ten principles. Gold Fields appointed KPMG to conduct an external assurance in their compliance with the ICMM ten principles and their conclusion was that Gold Fields is compliant with the requirements expected by the ICMM (Gold Fields, 2016).
Hydro	Hydro produces a Viability Performance Report that demonstrates their commitment to the ICMM ten principles. The report is assured by KPMG and they concluded that Hydro are complaint with the ICMM ten principles. The do not disclose how they implement each of the ten principles in their annual report or in any other report open to the public (Hydro, 2016).

JX Nippon	JX Nippon's Sustainability Report 2017 includes reference to the ICMM ten Principles. JX Nippon appointed KPMG to conduct an external assurance and they concluded that the Company's policies are aligned to the ICMM's ten principles. JX Nippon do not however disclose how they implement each of the ten principles in their annual report or in any other report open to the public (JX Nippon, 2017).
Lonmin	Lonmin's sustainability report considers and provides details with the regards to the ICMM ten principles and reporting requirements. KPMG was appointed to conduct an external assurance of Lonmin's operations and in their findings, they mention that the sustainability policies are not aligned with the ICMM ten principles. They indicate that Lonmin has not reported material sustainable development risks and opportunities and they have not implemented systems to mitigate these issues. Given Lonmin's history, this is a concerning as they do not have in place the correct implementation of the ICMM principles and position statements. This should be a focus area for the next year and the report should provide an update on the compliance (Lonmin, 2016).
Mitsubishi Materials	Mitsubishi joined the ICMM in 2002 and are committed to the ten ICMM principles. The Group provides full details of its activities, which is directly aligned to the ICMM requirements through a report named the Metals Company Supplementary Data Book. This report can be used alongside the Sustainability Report and it provides a reference for compliance and which section shows compliance. KPMG were engaged to provide external assurance, and based on the procedures performed and evidence collected, they concluded that Mitsubishi has complied with the ICMM Sustainable Development Framework, principles and reporting commitments (Mitsubishi Materials, 2017).
MMG	Varies standards define MMG's minimum requirements in managing their operational risks. These standards are aligned with the ICMM's ten principles and provide the basis for achieving and maintaining sustainable operations. Deloitte has confirmed that their practices are aligned with the ICMM ten principles through a table referencing where each requirement is located (MMG, 2016).

Newcrest Mining	Newcrest provides a table in their annual sustainability report highlighting their compliance with each of the ICMM ten principles. Ernst & Young have indicated that Newcrest is aligned to the ICMM principles and signal the improvement in their reporting framework over time (Newcrest, 2016).
Newmont	As a founding member of the ICMM, Newmont commits to comply with the ICMM's ten Principles and their annual sustainability report reflects the reporting obligations. They provide a summary table of each of the ten principles and where they are compliant. Newmont engaged Bureau Veritas North America Inc. to provide external assurance and they concluded that they are complaint with the requirements of the ICMM ten principles (Newmont, 2016).
Polyus	The Group implements ICMM standards as part of its ongoing operations. In 2016, Polyus continued to implement the ICMM Action Plan and to execute their sustainability standards and policies. The Sustainability Report illustrates the progress made by Polyus to fulfil the 2015–2016 ICMM Action. Polyus provide a table summarising each of the ten principles and where it is referenced in their operations. The Group engaged Deloitte LLP to review and comment on the Sustainability Report, to facilitate improvements to the entire sustainability reporting process. In addition, the Group aims to increase the accuracy, quality, and completeness of reported information to meet stakeholder requirements and to increase the efficiency of internal processes. Deloitte has concluded that through their findings, nothing has come to their attention that causes them to believe that the Polyus's description of its policies, procedures and disclosures and their alignment with the ICMM Subject Matter 1 - 5 as documented above are materially misstated (Polyus, 2016).
Rio Tinto	Rio Tinto is a founding member of the ICMM and they provide a table that illustrates their compliance with the ICMM ten principles in their annual sustainability report. Rio Tinto engaged PricewaterhouseCoopers to conduct an external assurance of their annual sustainable report which consisted of verifying the compliance of the ICMM

	principles. They concluded that nothing has come to their attention that causes them to believe that Rio Tinto do not comply with the ICMM ten principles requirements (Rio Tinto, 2016).
South32	South32 aligns its operations to the ICMM ten principles and report according to the GRI reporting requirements. KPMG was appointed to provide external assurance on South32's annual sustainability report and they concluded that they are not aware of any material misstatements and South32 is compliant with the ICMM ten principles (South 32, 2017).
Sumitomo Metal Mining (SMM)	The SMM Group has developed a CSR Policy which incorporates the ICMM's ten Principles and is aligned with the GRI guidelines. KPMG were engaged to provide external assurance, and based on the procedures performed and evidence collected, they concluded that SMM has complied with the ICMM Sustainable Development Framework, principles and reporting commitments. SMM do not however disclose how they implement each of the SD principles in their annual report or in any other report open to the public (Sumitomo Metal Mining, 2017).
Teck	Teck is a member of the ICMM and is committed to the ICMM's Sustainable Development Framework and the ten principles. PricewaterhouseCoopers audited the Teck sustainability report and indicated that they are compliant with the ICMM requirements. A report on the alignment of the ten ICMM principles was not available (Teck, 2016).
Vale	The sustainability report presents data and information according to the ten principles of the ICMM and the United Nations Global Compact, international initiatives to which they are signatories. Bureau Veritas was engaged by Vale to conduct an independent assurance of its Sustainability Report for the year 2016 and concluded that the report adheres to the principles, however there is no specific mention of compliance with the ICMM SD principles. This should be incorporated during the next reporting period (Vale, 2016).

Table 7: ICMM ten principle compliance

Table 7 provides an overview of the results of the companies providing more specific details regarding their compliance with the ICMM ten principles. This provides an overview of how each company conducts its operations as per the guidance by the ICMM. The research takes a step further and looks at the annual reports for the ICMM member companies for actual implantation of the principles across their operations. A common finding is how companies appoint auditors to assess their compliance with the principles and they provide assurance in their annual reports. Finally, not all the companies disclosed their compliance with the principles, these are presented in table 7 along with how companies report on the ICMM principle.

There were two companies, Codelco and Lonmin, that did not obtain an external assurance from their appointed auditors with regards to their ICMM compliance. These companies will need to address this in next year's report as they strive to be fully compliant with the ICMM SD principles. There were also few companies that obtained external assurance, however did not disclose their compliance with the ICMM SD principles. Other than these few exceptions, many of the companies did disclose their compliance and adherence to the ICMM sustainable development principles, which demonstrates their transparency in their operations.

In the literature review chapter, it was mentioned how the ICMM ten principles can contribute towards the UN SDGs. The UN SDGs are based on seventeen individual goals that aim to end poverty and hunger, protect the planet and ensure a sustainable future for all (United Nations Development Programme, 2018). The mining sector can influence sustainable developments around the globe. Mining companies should embrace this opportunity, while at the same time focus on how their operations affect the lives of individuals around the mines.

Company Name	SDG Reference
African Rainbow Minerals (ARM)	ARM provide a summary table in the supplementary information section in their annual sustainability report, which provides details to their contribution towards the UN SDGs. Reference to each goal is provides which demonstrates the actual contribution the company conducted in the year in review (African Rainbow Minerals, 2017).
Anglo American (AA)	AA have indicated that during 2017, they will launch a new Group sustainability strategy. The strategy will be aligned to the SDG commitments, it will focus on the areas where they believe they can most effectively contribute to SDG targets relating to socio-economic development, environmental protection and broader leadership in the mining sector while also helping to manage sustainability related risks to their business (Anglo American, 2016).
Anglo Gold Ashanti (AGA)	AGA have begun mapping each material issue to the SDGs and is used to further test their relevance to their external landscape and to societal expectations. They note that the linkages are particularly strong where a material issue maps to multiple SDGs. During 2017, further work will be undertaken to incorporate relevant United Nations Sustainable Development Goals, metrics and targets into their strategic framework, setting the basis for their operationalisation (Anglo Gold Ashanti, 2016).
Antofagasta Minerals (AM)	In 2016, work was completed to reinforce the shift of focus in AM's community investment, promoting initiatives arising from dialogue with the community and applying the Somos Choapa principles. AM highlighted that progress was made on the development of indicators for assessing the effectiveness of

	community projects and programmes, and their contribution to the development of the country. The procedures used is linked to the UN Sustainable Development Goals (Antofagasta Minerals, 2016).
Barrick	Barrick are committed to the UN SDGs through their interactions with the local governments, communities, and other partners to help meet the SDGs by 2030. Barrick provide specific examples of how they contribute to each of the goals providing detailed information during the 2016 reporting period (Barrick Gold Corporation, 2016).
BHP	BHP provide details in their annual report with regards to their contribution towards the achievement of the SDGs. They highlighted their direct contribution through their mining operations and through their tax payments, which government uses for economic development. A separate report is produced by BHP which provides the exact details of their contribution towards the SDGs (BHP, 2017).
Codelco	Codelco do not refer to the UN SDG's in their annual reports or website, however they refer to sustainability goals in general which can be linked to the SDG's (Codelco, 2016).
Freeport-McMoRan (FM)	FM strives to contribute towards the SDGs while at the same time, mitigate risks and issues associated with its operations. They indicate that they are committed to the ICMM Sustainable Development Framework and apply their ten Sustainable Development Principles, which can be directly related to the SDGs. FM produce a GRI content index report which also incorporates specific contribution towards the SDGs (Freeport-McMoran, 2016).
Glencore	Glencore recognise the importance of the UN 2030 agenda and understand that they have a vital role in contributing towards the SDGs. Glencore have many sustainability programmes in place which mitigate

	risks created through their operations, and these programmes are also aligned with the SDGs. Glencore produce a separate report named “Mapping Glencore’s Policies and Activities to the Sustainable Development Goals” which provide details of their contribution towards the goals (Glencore, 2016).
Goldcorp	Goldcorp have stated that they have undertaken an exercise that maps their material risks and topics to contribute towards the SDGs. This strategy has assisted Goldcorp to evaluate where synergies exist and how they can have a direct impact on the 2030 agenda. They use this to minimise and mitigate the risks that affect the company and local communities (Goldcorp, 2016).
Gold Fields (GF)	GF do not refer to the UN SDGs in their annual reports or website, however they refer to the ICMM ten principles which can be linked to the SDG's (Gold Fields, 2016).
Hydro	Hydro provide a SDG report, which provides details to their contribution towards the UN SDGs. Reference to each goal is provides which demonstrates the actual contribution the company conducted in the year in review (Hydro, 2016).
JX Nippon	JX Nippon indicate that they strive to realise the SDGs which were accepted at the UN summit. Other than this statement, there is no other information provided (JX Nippon, 2017).
Lonmin	Lonmin do not refer to the UN SDGs in their annual reports or website, however they refer to the ICMM ten principles which can be linked to the SDGs (Lonmin, 2016).
Mitsubishi Materials (MM)	MM held a stakeholder meeting in March 2017 and the theme was around the SDGs. It was discussed that the reporting moving forward will incorporate the SDGs and how MM contribute towards these goals (Mitsubishi Materials, 2017).

MMG	MMG reported on SDG 1 - 3 in their annual sustainable report and highlighted that they will continue to contribute towards these goals and the other fourteen goals in the future (MMG, 2016).
Newcrest Mining (NM)	NM do not refer to the UN SDGs in their annual reports or website, however they refer to the ICMM ten principles which can be linked to the SDGs (Newcrest, 2016).
Newmont	Newmont do not currently have any reports focusing on the SDGs, however they have indicated that they have initiated integrating the SDGs into their operations. They recognise that they are required to form relationships and partnerships within the mining sector to achieve the SDGs (Newmont, 2016).
Polyus	Polyus do not refer to the UN SDG's in their annual reports or website, however they refer to sustainability goals in general which can be linked to the SDG's (Polyus, 2016).
Rio Tinto	Rio Tinto's chief executive in 2016 signed a public statement which states Rio Tinto are supportive of the SDGs. They recognise that the SDGs can form part of their community engagement which can produce long-term benefits for both the company and the local community (Rio Tinto, 2016).
South32	South32 provide a summary of how they contribute to SDG 1, 3, 4, 5, 6, 7, 11, 12, 13, 15, and 16. Through their initiatives and activities they contribute to the advancement of the UN SDGs (South 32, 2017).
Sumitomo Metal Mining (SMM)	SMM has started considerations as to how companies should work toward achieving the seventeen UN SDGs and the 169 individual targets within these. On May 10, 2017, they held an internal lecture entitled "SDGs and Sumitomo Metal Mining" where they stated that they will start reporting on the SDG contribution and development (Sumitomo Metal Mining, 2017).

Teck	Throughout the 2016 sustainability report, Teck provide reference towards their contribution of the SDGs. Teck indicate that within the mining sector, they can contribute towards all seventeen goals. In Teck's latest sustainability report, they focussed on four goals in particular: SDG 3, 5, 8 and 13 (Teck, 2016).
Vale	Vale are committed to the UN SDGs and have a constructive relationship with local governments and communities to contribute to the 2030 sustainable development agenda (Vale, 2016).

Table 8: SDG reference

Table 8 provides an overview of the results of the companies providing more specific details regarding their contributions towards the UN SDGs. It is evident that SDG's are becoming more important for the mining companies as reporting has increased during the 2016 to 2017 period. There were also seven companies that indicated that they would be introducing more SDG reporting in the upcoming period, these include: AA, AGA, FM, GF, MM, Newmont and SMM. The companies that provided a full overview of their SDG contribution are: ARM, AM, Barrick, Glencore, Hydro, MMG, South32 and Teck. These companies provided reference to how they contribute to the SDG's and provide specific examples undertaken in the year under review.

4.4 Summary of results

The results have provided a great insight into how companies have highlighted their social development impact and the measures they have in place to comply with international standards and licences. The research focussed on the ICMM member companies annual integrated and sustainability reports over a five-year period. The five year-period provides an opportunity to identify if there have been any improvements over the years in the way a company reports. Most of companies showed an increase in the number of references towards key terms, which shows the importance in the sector to identify these aspects of operations. The results are based on a qualitative analysis of the company's annual integrated and sustainability reports over a five-year period.

CHAPTER 5. DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter focusses on the findings of the results and looks to build on trends and provide a response to the research questions. Each table in chapter 4 focussed on specific terms or company's application towards to obtaining an SLO or compliance with the ICMM ten principles. Each sub-section provides a link towards achieving an SLO and provides an overview of how companies report on their operations.

5.2 Discussion pertaining to Research Question 1

As presented in the literature review, the concept of a social licence to operate recognizes that business performance not only impacts their operations, but that of the society. Therefore, business operations that are directed towards the benefits of the society are on the increase and have become the norm in the sector (Laskovic, 2016). It was also discussed that an SLO is achieved by a mining company when there is approval from society to conduct its operations. Nelsen (2006) indicates that an SLO is a process for companies to earn accountability and credibility for both stakeholders and the sector (Nelsen, 2006).

This is how the first research question was defined, focussing on how often mining companies referred to a licence to operate, local communities, disclosure and transparency. Further analysis was conducted by presenting the specific SLO implementations companies implement during its operations. Finally, the Pyramid Model was used to assist in measuring the perceived level of SLO and how the ICMM member companies relate to the model.

5.2.1 SLO acknowledgment

As discussed in the literature review, the World Bank defined an SLO as free, prior and informed consent of local communities and stakeholders. This is seen

as the one of the major contributors towards measuring an SLO, and the ICMM companies have provided support to this through their annual reports. The companies have taken accountability for their operations and claim that they have been granted / issued an SLO from the community.

The results for this section focussed on the amount of times the ICMM member companies referred to a “licence to operate” in both their integrated and sustainability reports. In total the mining companies referred to a “licence to operate” 812 times throughout the five-year period. An important aspect to mention was that this number was evenly distributed between the annual integrated and sustainability reports. This demonstrates the importance that mining companies place on the term as they include it in their financial report where often social impact is not disclosed.

It was noted that there were seven companies that referred to a “licence to operate” once or not at all. The headquarters of these seven companies are in the United States of America, Japan, Chile, Norway and Russia. This can be an indication that these countries are less concerned about an SLO and everything that it demands. In these countries, the lowest level of ESG safety for mining activities is set by obligatory legal instructions and is guided by sustainable development improvements. This may be a reason why an SLO has not been mentioned by these companies as local regulations to not refer directly to an SLO, however, this could not be confirmed through this research, and it will be recommended for further research to be conducted.

5.2.2 Local community acknowledgment

The next area of focus was on how the ICMM member companies refer the communities surrounding the areas of their operations. It was concluded that all companies mention communities in both their annual integrated and sustainability reports. However, it was clear that the sustainability reports contain a greater number of mention to the local communities. Another trend that was identified was that companies have increased their reference towards the local community year on year, which provides the increased importance towards the local

community and the affects their operations have on the community. The final key finding was that all companies indicated that they are actively engaged with their communities and focused on ensuring that their interests are taken into consideration throughout their operation life cycle.

These results provide a good understanding of the importance that mining companies place on their communities. Each company provided their reference towards the community, which indicates that the companies have done their research into the communities and have identified the key members of communities that they can engage with. This is a direct link towards the literature review section of who issues or grants the licence. Understanding and engaging with relevant members of the local community is an important element to obtain an SLO. The Literature review also provided an overview of how important reference to the community is with regards to the mining sector. In the ICMM ten principle and SDG sections, the community was flagged on numerous occasions and that companies are required to ensure that they are engaging with the communities on an on-going basis.

5.2.3 Disclosure and Transparency acknowledgment and Measuring the SLO using The Pyramid Model

This section identifies the number of times disclosure and transparency was mentioned throughout the annual integrated and sustainability reports. The findings identify that all companies refer to disclosure and transparency throughout their reports and this signals its importance to their operations. The importance of these two terms is that it can provide a sense of trust between the local communities and the companies. This provides credibility and legitimacy towards the mining companies and can assist in obtaining an SLO. By a mining company disclosing and being transparent in their reports and engagement with the local community, creates a positive relationship and assists in the granting of an SLO.

Companies that are transparent and disclose their operations with the community are aligned to the requirements and measurements of the Pyramid Model. Having

these traits can provide a sense of legitimacy, credibility and trust towards the companies and is aligned with the ICMM principles. This is directly related to the “Pyramid Model” proposed by Boutilier & Thompson (2011). In general, the ICMM member companies indicate or demonstrate that they fulfil level 1, 2, and 3 however some companies fall short on level 4. Level 4 is the highest level of the pyramid model and involved a co-ownership between the mining company and the local community. At this level, total trust is established, and the community plays an active role in the mining operations. It was indicated that all ICMM member companies recognise their role in society and look to provide action in uplifting their local communities, with some having more success than others. The companies that require improvement in level include Freeport-McMoRan; Hydro; JX Nippon; Mitsubishi Materials; Newmont; and Polyus. The reasons for this is that they do not actually have an SLO in place, and they can improve their community relationships. This however, can be an indication that the countries that these countries operate in, are less concerned about an SLO and everything that it demands. Table 5 provided a brief overview of the social impact each company has in place, and these companies have areas for improvement.

5.2.4 SLO measurement within the ICMM member companies

This section is arguable the most important with regards to the actual measurement of the SLO within each mining company. Table 5 provides a summary of the actual social impact implementation each company has in place. Key aspects include reference to local communities, disclosure, transparency, and the granting of an SLO. It was identified that there were six companies of the twenty-four that do not mention their involvement of obtaining an SLO. These companies included: Freeport-McMoRan; Hydro; JX Nippon; Mitsubishi Materials; Newmont; and Polyus. These companies do however mention how their operations include being engaged with the local community and having a positive relationship. All companies seek to improve the social development in their areas of operations and look for social upliftment within the local community. While there are some companies that report specifically on their SLO, all the companies provide a great level of perceived community engagement.

Table 5 displays the ICMM member companies SLO adherence and the practices they have in place to obtain the licence. In the cases where no SLO has been referenced, the community engagement has been highlighted. Key references include community engagement, transparency and disclosure elements that link directly to the literature discussed in the previous chapter. The companies provided further details into their community interactions and how they enforce their operations to be aligned with the interests of the community.

5.3 Discussion pertaining to Research Question 2

5.3.1 Companies reference to the ICMM ten principles and UN SDG's

The second research question focussed on company's adherence to the ICMM ten principles and if this contributes to obtaining an SLO. In total the company's referred to the ICMM three thousand, two hundred and eighty-eight times across all the companies and over a five-year period. This provides a good overview of the importance that the mining companies place on the ICMM and use their guidance in their operations. Following the reference to the ICMM, the company's actual performance towards the ten principles were analysed and summarised. What was found that many companies appoint auditors to conduct an analysis of their operations and if they are aligned to the ICMM requirements. Providing this analysis indicated the importance companies have with regards to complying with the ICMM standards. There are also companies that provide summary tables in their annual reports presenting their compliance with the ICMM ten principles. Each principle was described, and the section where they show compliance was provided for the reader to further understand how they achieve the relevant principle.

As mentioned in the literature review, the SDGs are based on seventeen individual goals that aim to end poverty and hunger, protect the planet and ensure a sustainable future for all. It is a global agenda that the mining companies can play an important role in by contributing towards each of the goals. The SDGs

can be linked to the ICMM ten principles and together they can form a management platform that provides a positive contribution with regards to their operations.

Figure 8 depicts the relationship between the SDGs and the ICMM ten principles.



Figure 8: The relationship between the ICMM 10 Principles and the SDGs (International Council on Mining & Metals, 2018)

5.4 Summary of the results

The first research question focused on how the ICMM member companies report and highlight as their contributions towards the SLO. The first part of the question identified how often each company referenced their SLO. In total the term SLO was referenced eight hundred and twelve times throughout the five-year period. What is slightly surprising, is that this was evenly distributed between the two types of reports, which showcases the importance of an SLO for the company's operations to commence. However, there were seven companies that referred to an SLO once or not at all. This was due to the company's operations being in areas where there a few local communities around the mining sites. The next set of results disclosed the companies reference to their disclosure, transparency and local community. These three terms are important contributors to obtaining an SLO as it provides the trust and credibility in their operations and that local community interests were taken into consideration. These three terms were referenced many times throughout the five-year period and demonstrates the importance of the company's social development impact. The most important aspect of research question 1 was how the ICMM member companies measure their SLO and what practices they have in place to address the granting of an SLO. There were some companies that have action plans to ensure their SLO is maintained and present their progress towards this. Finally, the Pyramid Model was used to compare the company's performance to the four levels in the model. It was indicated that all ICMM member companies recognise their role in society and look to provide action in uplifting their local communities, with some having more success than others. The companies that require improvement in level include Freeport-McMoRan; Hydro; JX Nippon; Mitsubishi Materials; Newmont; and Polyus.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

Chapter 6 provides the conclusion to this research paper and providing possible areas of further research that can be conducted. This chapter also provides suggestions that have be identified from the results, which the ICMM member companies can improve on and play a greater role in the global sustainable development goals. As indicated numerous times throughout this report, the mining sector can be major contributor towards the UN SDGs and they can significantly improve the social and economic aspects of the countries they operate in.

6.2 Conclusions of the study

In summary, all the companies that clearly acknowledged SLOs, had self-perceptions of being in possession of SLOs. They highlighted how they engage with local communities and that their operations are transparent, and they disclose all relevant information to the communities. Using the pyramid model as a reference to measure the level of SLO, the research failed to determine the level at which these SLOs existed, as none of the companies stated the level at which their SLO, was held. However, looking at each of the levels of the model, the companies would all be on either a level 3 or level 4. Measuring the level of SLO is not a common practice within the mining sector, focus is more on the relationship with the community and ensuring constant engagement and focus on benefiting the community. There was also definitive link between the ICMM ten principles and obtaining an SLO. However, most of the principles can be aligned with the requirements for obtaining an SLO. The companies that indicated their ICMM compliance, referred to them having an SLO in place. It therefore can be concluded that the ICMM principles provide valuable guidance for companies to obtain an SLO. They assist with aligning the interests of the community with that of the mining company to provide trust and a positive relationship.

An SLO is granted by the societal buy-in towards a company's operations and cannot be granted by government through legal or regulatory licences. Companies are therefore made to make an investment towards non-guaranteed social improvements to achieve the local community approval. It must be noted though that mining has long term impacts on the environment and even if an SLO is granted, it won't necessarily provide the sustainability aspects that a community may require. It must also be noted that the research did not consider the viewpoint of those that have the authority to grant SLOs, which are communities, society and all other stakeholders. The reason for this is that SLOs are granted on a site to site basis and this detail could not be obtained through the analysis of the annual reports.

All the ICMM member companies spoke of having open and transparent relationships with the local community and stakeholders. This included having programs and plans in place to support the local communities and in turn promote the development of the society. Along with this, environmental impacts were included in the programs to ensure that all risks were mitigated.

In conclusion, the mining sector plays a significant role in the economy, providing essential minerals and improving society development. The negative impacts from mining operations is significant and can affect communities living around a project site. The research has demonstrated the importance of community engagement and how a positive relationship amongst the company and the local community is. The ICMM provide valuable guidance to ensure that companies take the local communities and stakeholders interests into consideration while conducting their mining operations. Without this in place, operations can come to a standstill and in some occasions be cancelled. Providing benefits to the community can provide positive returns for companies and obtaining an SLO is crucial to achieve this. Mining companies can have a great impact on social development and can provide positive assistance to their local communities and key stakeholders. The best way for this to occur is for the relationship between the company and the local community to be filled with respect, credibility and all that all interests are aligned.

6.3 Recommendations

Overall, the research has provided results that demonstrated the companies generally acknowledgement of an SLO and the ICMM ten principles. This demonstrates the positive intent from the ICMM member companies in referring to their social development impact. However, there are four recommendations that can be introduced by the ICMM member companies, these include: improved reporting on their SLO level; further details on the compliance with the ICMM ten principles; reporting on actual engagement with local communities; and guidance for companies that did not acknowledge SLOs within their company annual reports.

The first recommendation is for companies to improve their reporting on SLOs and how this is measured. The granting of an SLO is a significant step in the mining process and this should be illustrated in greater detail in the annual reports. The SLO should have its own section within the reports to provide further detail into how they have obtained an SLO and how it has been measured. Specific aspects that have been agreed with the communities can also be disclosed to provide a more definitive measurement of the SLO. This will provide a more formal approach than just a statement of claiming to have an SLO in place.

The second recommendation is for companies to provide further details on the compliance with the ICMM ten principles. The ICMM members are required to commit to their ten principles publicly and therefore should provide a greater overview of how they achieve each of the principles. There are a few companies that provided a summary table of the ICMM ten principle compliance. It is therefore recommended that all companies conduct this overview and even produce a separate report focussing on the ten principles.

The third recommendation is for companies to improve on their reporting towards actual engagement with local communities. All the ICMM member companies mentioned local communities throughout their annual integrated and sustainability reports, however only a few companies indicated the actual

engagement that they had with the communities. This reference would provide further context into the relationship that they have with the community and present what was discussed and how they have delivered on their promises.

The forth recommendation is applicable to the companies that did not acknowledge the SLO term at all within their reports. These companies mentioned their community involvement and interaction, however did not mention their licence to operate. As members of the ICMM, the guidance provided assist companies in obtaining an SLO and companies should formalise the SLO and ensure that they have all licences required to operate. The annual reports can then be updated to include the SLO and how this was achieved. It will provide a greater appreciation into their community social development programmes and increase their reputation and credibility.

6.4 Suggestions for further research

The population and sample for this research was only conducted using the member companies and provided a view of their SLO granting and their compliance with the ICMM ten principles. This however only covers a small proportion of the mining sector companies. There will be many other companies that report on their SLO and engagement with local communities, which could be included in the research question. A random sample of companies within the mining sector could be used to further investigate the SLO commitment and engagement with the community. This would also then provide an opportunity to identify processes in place for companies that are not members of the ICMM.

Another area of research that can be considered to focus on the motivation towards a companies' granting of SLOs, coupled with reluctance to declare their levels at which these SLOs exist. It has been highlighted in this research that companies do not refer to the level of their SLO and this would be an important element to provide guidance in improving their SLO and determine if there are any aspects that they fall short on. The SLO is a very complex idea that can be developed further and identify the positive and negatives for both the community and the Company.

It was noted earlier in the research that there were seven companies that referred to a “licence to operate” once or not at all. The headquarters of these seven companies is in the United States of America (Freeport-McMoRan and Newmont), Japan (JX Nippon and Mitsubishi Materials), Chile (Codelco), Norway (Hydro) and Russia (Polyus). This could provide an indication that these countries are less concerned about an SLO and everything that it demands. Further research should be conducted to confirm the SLO requirements of certain countries and if it could be an area for improvement.

The final suggestion towards additional research would be to focus on the community’s role in the granting of an SLO. Here the key element would be conducting interviews with the communities to understand how the company’s performance measures up to their agreements and promises. This could also provide an opportunity for companies to understand what is important to the community and assist in implementing new development plans. Interviews with the companies could also be conducted to describe their engagement initiatives and if the community’s interests are taken into consideration. Providing both ends of the story can produce a clearer overall picture of the SLO and what it means to the greater mining community and country.

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