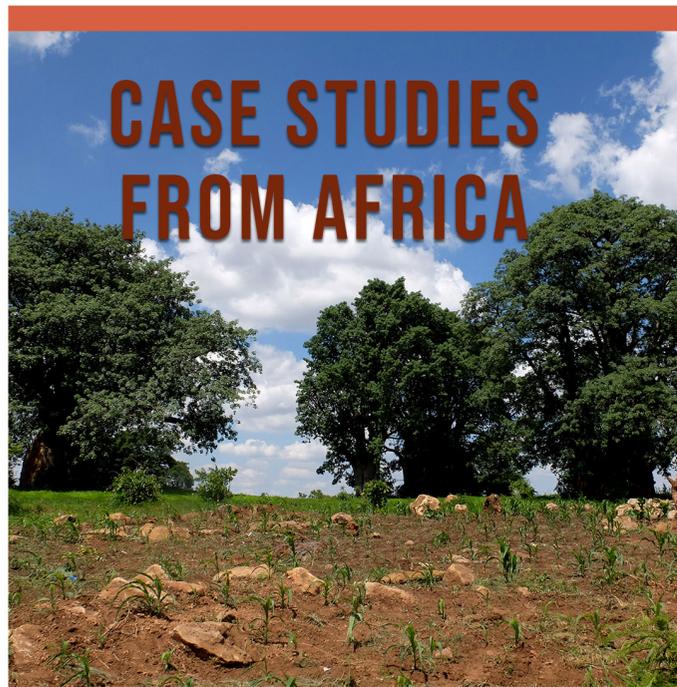


# RURAL-URBAN LINKAGES AND SUSTAINABLE DEVELOPMENT

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## CASE STUDIES FROM AFRICA

RURAL-URBAN LINKAGES  
AND  
SUSTAINABLE DEVELOPMENT

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# Chapter 1

## Forging Sustainable Livelihoods in Resource Regions: A Tale of Three Continents

Isabel B. Franco

### Introduction

**M**ining development offers both strong advantages and powerful difficulties to local communities in resource regions, particularly those adjacent to mining operations. Locals are often highly dependent on mining for employment and economic development but this dependence comes with inevitable economic, social, environmental vulnerabilities and loss of livelihood options. If these communities are in developing contexts, the difficulties are exacerbated because of unequal access to political and economic resources, poor local governance, unbalanced access to resources, and often, low levels of education and skills (Franco, 2014). Yet, mining can also be a critical component of local development, particularly in the construction of sustainable livelihoods.

A wide number of frameworks have served as a platform to better understand community livelihoods in mining regions – Sustainable Livelihoods Approach (SLA) is one of such. Originally developed to help address rural poverty in the Global South (Carney, 2003; Rakodi and Lloyd-Jones, 2002), the SLA has been conceived as an approach to rethink development. Therefore, this chapter builds our knowledge upon how the SLA approach can be applied to examine sustainability issues in mining regions, particularly in the context of selected case study locations.

The SLA allows showing how mining corporations in collaboration with higher education institutions and external stakeholders can help communities maintain their livelihoods and meet community development aspirations. The trigger for SLA in resource regions has been the apparent contradiction between increased mining development and a lack of livelihood options for communities, which has led to productivity losses in the industry, on account of delays, discontent and social tensions in mining locations (Franco, 2014). The SLA is a useful approach to examine sustainability issues in resource-rich contexts where mining forms a major component of the local and regional economy (Buitrago-Franco

and Robertson, 2014; Franco, 2014). In this context, the chapter consists of three (3) sections. First, this chapter provides an overview of the theory behind the SLA. The second part presents SLA applications to selected case study locations. It also concentrates on SLA components, namely: context, governance, livelihood assets, livelihood strategies and outcomes. These components will also be explained in detail in forthcoming sections. Some SLA components have been adapted to provide readers with a more accurate examination of the three locations. The ways in which they can be modified are explained more fully later in the chapter, but in summary the contextual and governance components of the SLA are focused on aspects particularly relevant to communities dependent on mining, and the focus of the SLA is often on community assets relevant to locals rather than all five forms of assets (human capital, natural capital, social capital, financial capital and physical capital) usually considered in the original SLA (see figure 1.1). This is followed by the conclusion.

### **Theory behind the Sustainable Livelihoods Approach (SLA)**

This section builds upon SLA theory in mining contexts (see figure 1.1) and shows how the SLA helps structure the presentation of selected cases. The SLA has been previously adopted to assess community assets and to address the complexity of issues concerned to forging sustainable livelihoods in mining regions. Therefore, this section explores current scholarly debates and increases knowledge on SLA principles and implications for communities.

The structure used to present the case study locations in the second part of this chapter is based on what is variously called the ‘Sustainable Livelihoods Framework’ (SLF) (Hostetler 2006) or the Sustainable Livelihoods Approach (Mazibuko, 2013). As Mazibuko (2013, pp.174-5) makes clear, it is not a theory or a model but he also says that “as a framework ... [it] helps in considering the phenomenon and recognizing patterns.” One of the core components of the framework is the notion of “livelihood” itself. A livelihood comprises the assets, capabilities and activities required for the means of living, so that “a livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future” (DFID, 1999:1). The SLA was conceived as a way of thinking about the objectives, scope and priority of development (Carney, 2003; Rakodi and Lloyd-Jones, 2002). This approach has been adopted by various organisations to assess developmental projects at various scales. The British Government Department for International Development (DFID), the United Nations Development Program (UNDP) and NGOs like CARE, are some leading organisations in applying the SLA, just to name a few (Carney, 2003). Its potency as an approach lies in the fact that it “recognizes that people have many capabilities, have various assets and engage in many activities to earn their living” as well as recognizing that “institutions and processes should be clearly understood” (Mazibuko, 2013:175).

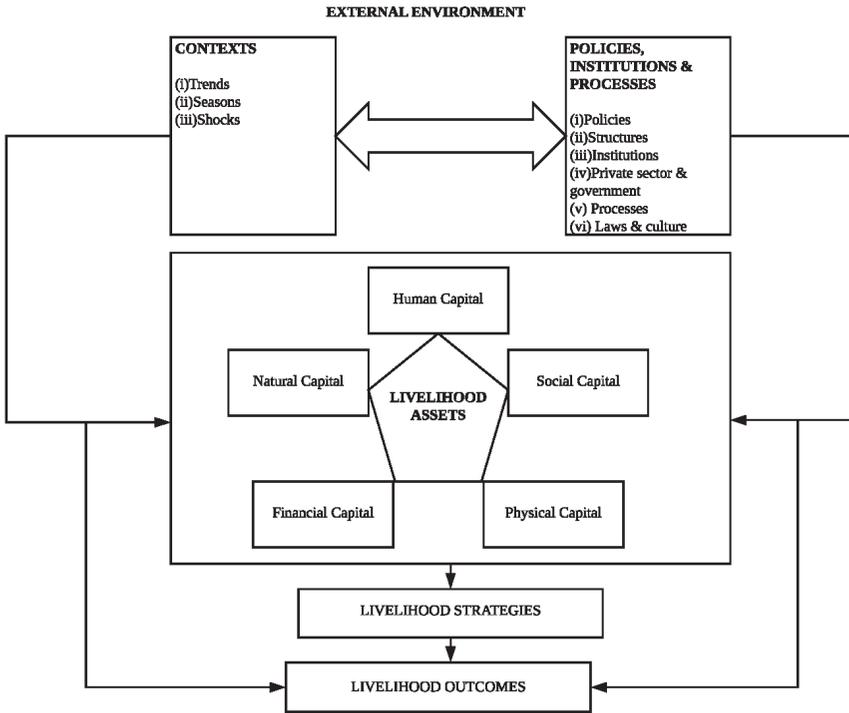


FIGURE 1.1. Sustainable Livelihood Approach (SLA)

The approach also resonates with Sen’s (1979) approach to strengthening communities’ capabilities or assets, for which they need rights and opportunities. Therefore the focus on assets is critical (Mitlin, 2003). However, despite its widespread use, it has several weaknesses. One is that it neither provides an adequate role for the private sector, nor provides for broader ideas about the governance environment (Carney, 2003; Franco, 2014). Forthcoming sections in this chapter show how the SLA can be incorporated and expanded and how these two elements interact. Possible applications examined here explore how researchers in higher education institutions in collaboration with mining corporations take part in creating sustainable livelihoods, and a broader understanding of collaborative governance arrangements amongst these and other relevant stakeholders can enable these processes.

SLA usually follows the key components proposed by Rakodi and Lloyd-Jones (2002), namely: the external environment; vulnerability context; governance environment or policies, institutions and processes; livelihood assets; livelihood strategies and livelihood outcomes. These key components are linked as shown in Figure 1.1, but the modifications to the SLA can create a framework that is more suited to understanding selected mining contexts. Such modifications to

suit the relevant context have been used by other researchers. For example, Shen, Hughey and Simmons (2008), in their review of the use of the SLA in the tourism industry, referring to Cahn's (2006) application of it to her Samoan case studies, noted that "a 'one size fits all' SLA is neither possible nor appropriate - context is important". This chapter presents SLA applications in the Colombian (Franco, 2014) Australian (Buitrago-Franco and Robertson, 2014) and Zambian cases. The analysis presented in forthcoming sections shows how the modified SLA has enabled the review of existing activities, better understanding of cause and effect relationships, and a more accurate examination of sustainability issues in mining locations. Such examination is also supported on SLA principles and components that facilitate data collection and analysis in mining contexts.

### **SLA Components**

The SLA consists of five components that help us conduct a deeper examination of case study locations in mining regions. These are: 'vulnerability context', 'governance' or 'PIP (Policies, Institutions and Processes)', 'livelihood assets and outcomes'. These can be modified and adapted for a better understanding of contextual differences (see Figure 1.1). Based on Franco (2014) this section provides a brief description of the SLA's components to illustrate their value in SLA applications.

### **Vulnerability Context**

The broader term 'context' is sometimes used in SLA applications rather than the original term 'vulnerability context' found in the SLA literature. The context consists of trends, cycles and shocks. The trends can be positive or negative, and have a strong influence on community livelihoods, whereas the cycles pertain to recurrent economic shifts and employment opportunities (Rakodi & Lloyd-Jones, 2002). These resource cycles have implications for local communities, particularly in terms of regular fluctuations in the value of minerals and availability of employment opportunities. The context component also includes the concept of shocks. The shocks lead to shifts that might destroy community assets resulting in or from conflicts or wars.

### **Policies, Institutions and Processes**

The policies, institutions and processes (PIP) box deal with the governance environment in which livelihoods are constructed. Policies are those impacting on community livelihoods. Institutions are relevant stakeholders involved in livelihood construction and governance processes consist of interactions amongst key stakeholders. The research of this component helps us increase our understanding of the roles that stakeholders and existing policies play in building sustainable livelihoods.

### **Livelihood Assets**

Following the theory behind the SLA, a livelihood comprises the capacities required for the means of living. People's livelihoods are the key components of the SLA. Community assets are diverse and vary across individuals, households, communities and contexts where they are immersed (Franco, 2014). SLA applications usually involve five forms of capital originally proposed in the SLA, namely: human, social, physical, financial and natural capitals as shown in Figure 1.1. However, SLA applications can focus on one specific form of capital of relevance for the community. Such applications allow researchers to have a nuanced understanding of gap and target areas in the construction of 'livelihood assets'.

### **Livelihood Strategies and Outcomes**

The assets available or stock of capital at the community level can be accumulated, restored, exchanged or depleted and put to work to generate income. The transformation of assets in any of these forms constitutes the livelihood strategies of the SLA. Such strategies are more likely to be effective if communities become active participants in their own development (Rakodi and Lloyd-Jones, 2002). In doing so, communities need to be equipped with the capacities or skills to develop their own sustainable livelihood strategies (Eade, 2007). Hence, strategies in place might be temporary rather than sustainable. They may also be of varying degrees of relevance for locals. Livelihood strategies can take the form of combination, substitution, sequencing and clustering (Mandke, 2007).

### **Combination and Substitution**

Following the SLA, combination and substitution are two strategies that can enable the construction of sustainable livelihoods in practice. In theory, instead, it is advisable to apply these two strategies based on a previous analysis of both, the context and governance components. The main objective of the combination strategy entails exploring how mining and other livelihood options such as agriculture co-exist and the implications of this co-existence for locals (DFID, 1999). As for substitution, assets and livelihoods can also be substituted to assist communities in forging livelihoods more aligned with community aspirations (DFID, 1999).

### **Sequencing and Clustering**

Sequencing concerns to resources that need to be allocated one after the other to forge livelihoods, while clustering relates to the group of livelihood assets associated with specific livelihood strategies (DFID, 1999). These two strategies assist researchers and practitioners in determining how assets can be employed effectively. In mining regions, there are specific community assets that need to be enhanced to meet local development aspirations.

### **SLA Principles**

The SLA principles are foundational elements for research in mining contexts. Principles are essential elements as they contribute to the assessment of economic activities such as mining and their contribution to local livelihood options (Carney, 2003; Rakodi & Lloyd-Jones, 2002). By applying the SLA, researchers at higher education institutions and practitioners can further contribute to build knowledge and draw recommendations for the construction of sustainable livelihoods in resource regions. Based on Franco (2014), SLA principles are briefly reported below.

#### **Flexible and Long-term**

The SLA is a flexible and adaptive framework applied to address multidisciplinary issues. Its applications are diverse. They vary from poverty reduction projects to empirical research exploring the contribution to communities of economic activities like agriculture (Carney, 2003), tourism (Mandke, 2007) and mining (Franco, 2014). Following this principle, the SLA has the potential to assess the impact of these activities on local communities. For example, it allows to build knowledge on how communities can gain lasting benefit from the mining sector during the mine-cycle and beyond (Veiga, et al., 2001; Hilson, 2006).

#### **Sustainable and People-Centred**

The SLA is a people-centred approach to sustainable development. Its anthropocentric nature places local communities at the centre of development and assists researchers and practitioners in developing recommendations to reduce community natural resource-dependence. An issue often caused by ongoing paternalistic treatment by corporations towards communities (Veiga, et al., 2001; Jenkins, 2004; Cornelius et al, 2008). This is what Jenkins (2004:26) calls 'false dependency', a scenario in which companies act as providers of services and business for communities. Placing communities at the centre will hopefully help researchers and practitioners explore the extent to which communities adjacent to mining operations can become active participants in shaping new pathways for development.

#### **Participatory and Empowering**

SLA is both empowering and participatory. Local communities in mining resource regions are often disempowered and lack knowledge about their rights and negotiation skills to deal with more powerful actors such as multinational corporations. Poor decision-making skills at the community level exacerbate the issue (Mabudafhasi, 2002; Christensen & Grant, 2007; Muthuri, 2007). SLA can provide insights on how communities can actively participate in decision-making processes concerned with livelihood options. It is highly recommended that researchers and practitioners further explore the role of communities in negotiating and participating in mining developmental demands. This can assist

communities in creating strategies and sustainable outcomes for those communities (Rakodi & Lloyd-Jones, 2002).

### **Multi-level and Holistic**

The SLA is conceived as a multi-level approach and as a tool for a holistic analysis of communities in mining contexts. It also helps understand the linkages between SLA components (Rakodi & Lloyd-Jones, 2002). Despite the SLA's holistic approach, a detailed examination of individual components can also be undertaken without overlooking other elements. Researchers can focus on one or two components as units of analysis and simultaneously benefit from this holistic approach. This principle also allows us to build knowledge on the linkages between the components of the SLA and draw recommendations for communities.

### **Conducted in Partnership and Disaggregated**

Past SLA applications have shown a dearth of research on the governance environment that surrounds communities (Franco, 2014), yet partnerships are key elements to strengthen community capacities and/or assets (Carney, 2003). Thus, further research that explores the governance component or PIP box of the SLA (Policies, Institutions and Processes) is needed. An exploration of the interactions between relevant stakeholders serves as a means to address development issues, particularly in mining contexts (Muthuri, 2007; Warhust 2001). In order to understand the relationships amongst stakeholders, previous SLA applications have suggested an examination of the ways in which different actors perceive sustainable community development (Carney, 2003).

This section explored the theory behind the SLA as well as its foundational principles. It also highlighted potential application of such principles in the design of research that increases our understanding of community opportunities for forging sustainable livelihood options in mining resource regions.

### **SLA Applications: A Tale of Three Continents**

This section increases our understanding of SLA applications in dissimilar mining contexts in three continents, namely Colombia (Americas), Australia (Asia-Pacific region), and Zambia (Africa). The SLA has been adopted to examine these three cases and to address the complexity of issues associated with community livelihood assets and linkages with various industries such as agriculture, mining and tourism.

The SLA applications presented in this section also applies the characteristics and values of the case study method, as it allows the researcher to analyze complex contemporary social phenomena within a real-life context (Yin, 2009). It also helps us define research topics broadly and cover contextual conditions determined by multiple and interdependent variables, like trends, cycles and shocks as in the original SLA (Yin, 2003; Franco, 2014). The case study is often

applied when the researcher has marginal or no control over behavioural events, which is the case of SLA applications in vulnerable contexts such as mining locations. Applications reported in this section illustrate the role of disruptive industries such as mining and implications for vulnerable communities adjacent to mining projects.

### **SLA Application: Colombia, The Americas**

This section shows the SLA application in two mining regions of Colombia, namely, Antioquia and Risaralda, yet some changes in the original SLA were made for a more accurate analysis of the Colombian context. Based on a preliminary investigation of the situation (Franco, 2014), a multiple case study method was applied to examine the SLA 'Vulnerability Context' and overall application of the SLA. Trends were identified as the principal factor for mining in Colombia and constituted the key unit of analysis in the vulnerability context component. Instead of 'Vulnerability Context', this component was named 'Context'. According to Franco (2014), Colombian communities are diverse and mining impacts on locals are not entirely negative, as some communities get a real benefit from the mining industry. There are some regions where communities are more resilient due to the direct benefit they get from mining development, reducing potential vulnerability to cope with mining impacts over time (Warhust, 2001). Following the SLA, there are various resource trends that impact on communities. However, this application focused on existing reserves of natural resources (minerals and metals). As for the shock component, the role of conflict was the unit of analysis. An extensive review of the literature was conducted before undertaking fieldwork to gain nuanced understanding of the context and its variables as well as the governance environment or the SLA's PIP component (Policies, Institutions and Processes).

The review of the governance environment showed a leading role of the private sector in collaborative and conflicting processes. Such review consisted of policy and scholarly literature on current debates in Colombian mining. Multinational, domestic mining and exploration companies, as well as informal mining actors were identified as key players in the governance environment. Stakeholder Analysis and semi-structured interviews were applied to map the interactions amongst these actors.

Human capital was examined as the principal focus of the livelihood assets box. Although the original SLA comprises five forms of assets (or capital) (See figure 1.1), this study focused only on human capital. A deeper analysis of the human capital component was later undertaken during the fieldwork stage where unstructured interviews and focus groups were also conducted to identify priority areas for human capital development (Franco, 2014). Data analysis showed that education, employment, entrepreneurship, income generation and apprenticeship opportunities are key assets to construct sustainable livelihoods in the Colombian context. The study also found that communities that have been

properly consulted about human capital priorities have been able to strengthen key assets, becoming more capable of coping with mining-induced changes.

Another important finding from the research was that priority areas which are the most valuable for communities are those that help them achieve their own sustainable development goals. Because of this, bottom-up approaches to human capital development as constituent parts of sustainability agendas are more likely to create value for communities than are top-down approaches. The study also found that in those cases in which companies have embraced community-driven agendas, locals claim to have become more resilient. The livelihood outcome component of the study also showed that local communities in mining regions need to be trained in other areas apart from mineral processing to help them forge more sustainable livelihood options. An examination of the 'Livelihood Strategies' component indicated that a combination strategy is needed to couple both, mining and agriculture sectors. This approach appeared to assist locals in keeping their traditional livelihoods. For example, coffee and blackberry production training provided by the private sector can help locals sustain their livelihoods in the long run.

However, such approaches need to be included as a constituent component of both, corporate and government policies. It is not solely the companies' responsibility to enhance human capital across the region as governments are equally accountable for overall sustainability. A major recommendation derived from the SLA application to the Colombian case is that communities should be permanently consulted on their development aspirations, both by companies and governments. Yet, such consultation should not be merely the token provision of information but that the involvement of communities in important decision-making processes on allocation of funds that enabled overall sustainability (Franco, 2014).

### **SLA Application: Australia, Asia and The Pacific**

A case study methodology was introduced to conduct the SLA application in the Australian context. A case first documented by Buitrago-Franco and Robertson (2011). The study elicited interesting findings in the construction of livelihood options. In May 1978, the South Australian Minister for Planning proposed to the Cabinet that Leigh Creek South should be an open town rather than a closed or company town. Located in a remote area of South Australia, the town had a population of 700 residents in 2011 (ASB, 2012).

Leigh Creek coalfield was privatized in 2000, leased and operated by Alinta energy. Under the lease agreement, Alinta Energy was also responsible for the maintenance of the town, with the exception of the government buildings such as the hospital, police station and school. Residents in Leigh Creek were required to work a minimum of twenty (20) hours per week for the mine or services provided in town or be a family member of a worker. According to the study, the overwhelming opinion expressed to the community was that the town should

remain closed to outsiders and only people who worked or provided support services for the Electricity Trust of South Australia (ETSA) were allowed to live in Leigh Creek (Klaassen, 1997; Buitrago-Franco and Robertson, 2013). A review of policy and scholarly literature demonstrated no documentary evidence that the South Australian Government had undertaken any planning for overall community sustainability once the Leigh Creek coalfield had ceased operations.

Regarding the governance environment of the SLA component, the unit of analysis were corporate and government policies. Findings showed that the policy shift at Leigh Creek and implications for communities occurred in September 2012 when Alinta Energy altered the shift cycle from a four-day-on, four-day-off cycle to a seven-day-on, seven-day-off cycle. The change in cycle was designed to increase the productivity and profitability of the mine, with one week for production and the other to maintenance. These changes led the shift from a resident workforce to a drive-in, drive-out workforce. The shift itself aimed to increase the lifespan of the mine, yet overlooked community's involvement in decision making, having implications for post-mining at the coalfield and therefore for community livelihood assets.

The examination of the SLA component 'Livelihood Assets' consisted of the application of surveys to identify community priorities during the life of the mine. Findings showed that the local community seemed to be highly dependent on mining. They also depended on a range of goods and services provided in town at the time of the study. An examination of livelihood assets also indicated that the level of interaction and dependency on Leigh Creek by surrounding communities would allow the town to be viable as a service center after mine closure. Findings also demonstrated that a suitable livelihood strategy to be applied to the Australian case is the combination of mining with community capacity-building in other industries relevant for the local economy due to the inability of local communities to reside in the town unless they find gainful employment opportunities locally. The examination of livelihood outcomes also showed that there has been limited action by state actors in supporting the development of non-mining activities, a decision that jeopardizes overall community sustainability.

### **SLA Application: Zambia, Africa**

This section presents the SLA application to the Zambian context. The section is based on stakeholders' perceptions collected during a consultation workshop held at the Education for Sustainable Development in Africa Conference, organized by the University of Zambia in April 2018. Potential research limitations and units of analysis in future SLA applications are covered in this section. Data that supported the examination of the 'vulnerability context', 'governance or PIP' and livelihood assets components were collected from participants' perceptions following a semi-structured interview questionnaire. Seven participant groups from various sectors, namely, governments, the private sector, higher education

and civil society organisations, were involved in the consultation process.

Participants agreed that SLA applications in the the Zambian context can be constrained by research limitations, namely human, physical and financial. Regarding human barriers, there are difficulties in regards to people management, cultural beliefs, limited knowledge, poor working culture and capacity for execution. As for physical barriers, lack of equipment and insufficient data and literature available are major concerns. Limited financial resources and lack of capacity to efficiently manage those are two issues that remain unaddressed. These issues also compromise the ability of researchers and practitioners to conduct a more comprehensive SLA application in the Zambian context.

### **Vulnerability Context**

The three variables, namely cycles, trends and shocks in the original SLA's vulnerability context component were addressed by participants. As for cycles, issues such as corruption and poor working culture were identified as cyclical elements in the context component. Regarding trends, national income, the nationalization of mining and increasing investment are perceived as determinant factors to analyze the trends component of the SLA.

In addition, various types of shocks were identified by participants, namely, economic, social, political and natural shocks. Global and local market dynamics, such as fluctuation of commodity prices and the international energy crisis are situated within the economic domain. Conflicts, political instability and floods were perceived as social, political and natural shocks, respectively. All these factors should be subject to analysis in future SLA applications.

### **Governance or Policies, Institutions and Processes (PIP)**

Participants were also asked to identify key stakeholders and their level of influence and interest in the governance environment in resource regions in the Zambian context. Following participants' perceptions, figure 1.2 shows relevant stakeholders, their levels of interest (vertical) and influence (horizontal). Interestingly, the community and shareholders are perceived as two relevant stakeholders to be included at all levels of decision-making processes. Similar findings had already been documented by Hamann et al (2005).

### **Community Livelihood Assets**

The examination of the community livelihood component was based on the 'Sustainable Development Goals (SDGs) Framework', an approach to development promoted by the United Nations since 2015 to address global sustainability issues by 2030 (United Nations, 2015; Yonehara et al., 2017). The SDGs consist of seventeen goals from which participants identify gaps and target areas. A preliminary examination of this component shows that existing gaps include but are not limited to SDG 7 Affordable and Clean Energy, SDG 12 Responsible Consumption and Production, SDG 14 Life below Water.

Interestingly, as shown in Figure 1.3, other fourteen SDGs are perceived by participants as target areas. This preliminary examination shows that stakeholders, particularly higher education institutions in collaboration with mining companies can make a strong contribution in filling existing SDGs gap areas.

**Conclusions**

This chapter showcased SLA applications reporting on the design of sustainable livelihood options for communities in three mining resource regions: Colombia, Australia and Zambia. The theory behind the SLA and a practical application of this framework in the three cases show how it encapsulates a process of building community capacities through the enhancement of assets. This approach to think of sustainable mining development focuses on community assets, as unit of analysis.

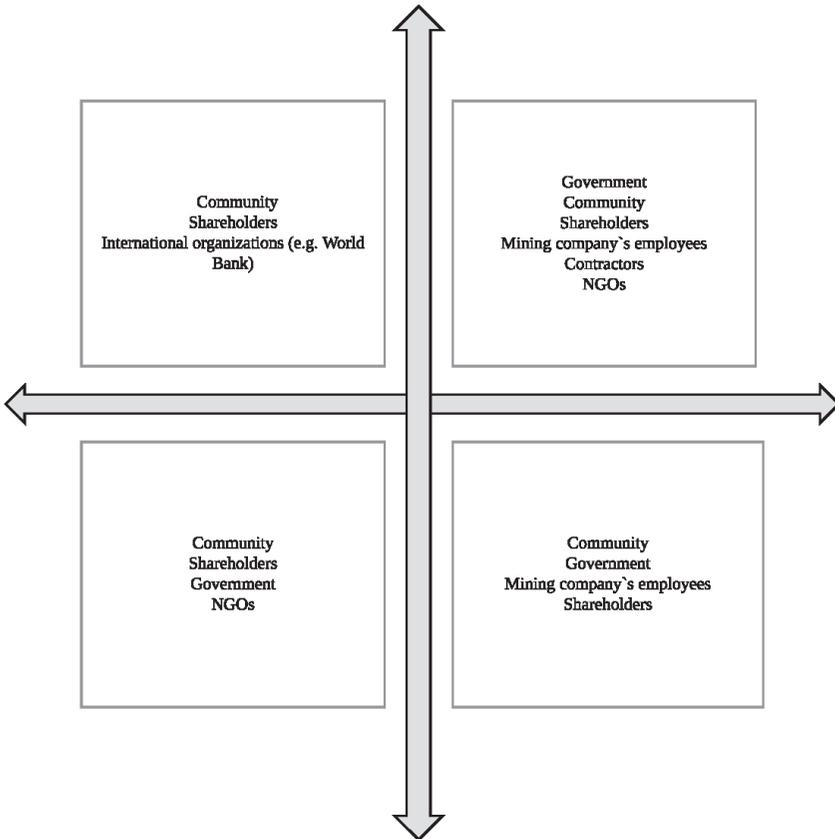


FIGURE 1.2. Stakeholder Analysis in the Zambian Mining Context

More importantly, it enables a nuanced exploration of ways in which community assets can be deployed, developed or employed in selected study locations. Given the SLA flexibility, a major contribution derived from its application in the three cases, is the exploration of its five components, namely ‘Vulnerability Context’, Governance Environment or ‘Policies, Institutions and Processes’, Livelihood Assets, Strategies and Outcomes. Analysis of these components requires further investigation in selected cases as it enables empirical investigation on interlinkages between mining development and community sustainability.

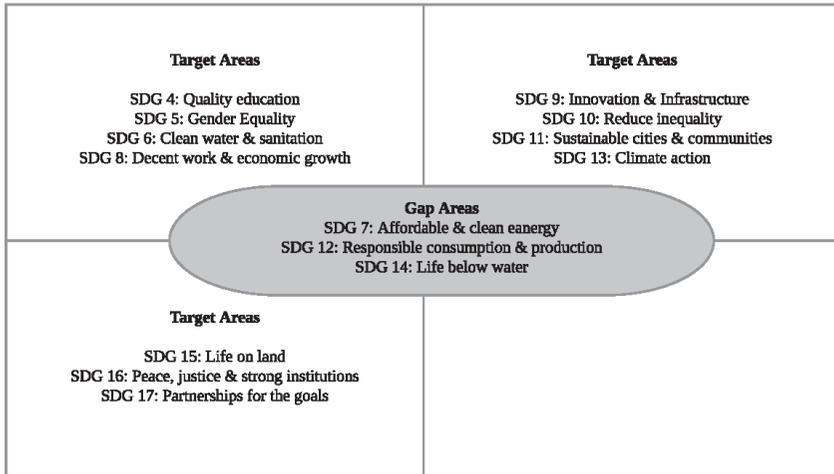


FIGURE 1.3. Sustainable Development Goals: Target and Gap Areas for Zambian Communities

Past SLA applications to the ‘Vulnerability Context’ component have shown that the shortfall in skilled human capital in active mining areas has increased mobility of people across the globe, preventing local unskilled human capital from competing against these global pressures. These circumstances are causing local tensions that have resulted in conflict and limited livelihood options for local communities (Franco, 2014). This issue was further explored in the Colombian and Australian case. Therefore, more research is needed in this area to better understand existing conflicting demands.

A nuanced examination of conflicting demands from actors involved in mining contexts also needs to be conducted in alignment with the SLA component ‘Governance Environment or PIP component ‘Policies, Institutions and Processes’. This enables researchers to map the interactions between the private sector and less powerful players such as communities. Previous SLA applications have covered both, government and community roles in developing sustainable livelihoods; however, they have little to say about the private sector’s role (see for example Rakodi et al., 2002). Thus, the significance of undertaking SLA applications in mining contexts where mining corporations have a direct

influence on communities. Participants examining the Zambian case suggested various ways in which the private sector can make a stronger contribution to local livelihoods. The achievement of priority SDGs is one of such.

Another major contribution from the SLA application in mining contexts has to do with its anthropocentric approach. Placing people at the center is one of the SLA principles often applied to the 'Livelihood Asset' component. There is a common trend in mining locations on attracting and retaining a viable local workforce as well as fostering actions that first benefit the industry. However, limited attention is paid to the role of the private sector in constructing livelihood options in other paths different from mining. Similarly, the role of local communities in decision-making and governance processes aimed to foster sustainable livelihoods is underinvestigated (Franco, 2014). This examination can help researchers and practitioners develop recommendations and further contribute to current scholarly debates on sustainable community development and hopefully contribute towards the enhancement of community assets.

Finally, an examination of livelihood assets, strategies and outcomes requires a careful comparative analysis against preliminary findings in the 'Vulnerability Context' and the 'Governance Environment' or 'PIP (Processes, Institutions and Policies)'. Overall SLA applications in selected cases have the potential to build on scholarly debates on SLA theory in the context of mining regions as well as equipping researchers and practitioners at higher education institutions to better design research aimed to explore opportunities for sustainable mining development.

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### **References**

- Buitrago-Franco, I. and Robertson, S. (2014). Mine Life Cycle Planning - Creating Lasting Value for Communities. Paper presented at the Conference Life-of-Mine 2014, Brisbane.
- Cahn, M. (2006) Sustainable Rural Livelihoods, Micro-Enterprise and Culture in the Pacific Islands: Case Studies from Samoa, PhD dissertation, Development Studies, Massey University, New Zealand. Retrieved 22 January, 2015, from [http://muir.massey.ac.nz/bitstream/handle/10179/1532/02\\_whole.pdf](http://muir.massey.ac.nz/bitstream/handle/10179/1532/02_whole.pdf)
- Carney, D. (2003). Sustainable Livelihoods Approaches. Retrieved 25 March, 2014, from [http://www.eldis.org/vfile/upload/1/document/o812/SLA\\_Progress.pdf](http://www.eldis.org/vfile/upload/1/document/o812/SLA_Progress.pdf).
- Christensen, J. and Grant, M. (2007). How Political Change Paved the way for Indigenous Knowledge: *The Mackenzie Valley Resource Management Act*. Arctic, 60(2), 115-123.

- Cornelius, N., Todres, M., Janjuha-Jivraj, S., Woods, A., Wallace, J. (2008). Corporate Social Responsibility and the Social Enterprise. *Journal of Business Ethics*, 81(2), 355-370.
- DFID (Department for International Development). (1999). Sustainable Livelihoods Guidance Sheets. UK: DFID.
- Eade, D. (2007). Capacity Building: Who Builds Whose Capacity? *Development in Practice*, 17(4), 630 - 639.
- Franco, B. I. (2014) Building Sustainable Communities: Enhancing Human Capital in Resource Regions - Colombian Case, PhD dissertation, Sustainable Minerals Institute and School of Geography Planning and Environmental Management, The University of Queensland. Retrieved from [http://espace.library.uq.edu.au/view/UQ:342033/s42244484\\_phd\\_submission.pdf](http://espace.library.uq.edu.au/view/UQ:342033/s42244484_phd_submission.pdf)
- Hamann R., Kapelus, P., Sonnenberg D. (2005). Local Governance as a Complex System: Lessons from Mining in South Africa, Mali and Zambia. *The Journal of Corporate Citizenship* 18, 61-73.
- Hilson, G. (2006). Championing the Rhetoric? "Corporate Social Responsibility" in Ghana's Mining. *Greener Management International* 53, 43-56.
- Hostetler, M. (2006) Enhancing Local Livelihood Options: Capacity Development and Participatory Project Monitoring in Caribbean Nicaragua, PhD Thesis, Graduate Program in Geography, York University, Toronto
- Jenkins, H. (2004). Corporate Social Responsibility and the Mining Industry: Conflicts and Constructs. *Corporate Social Responsibility and Environmental Management*, 11(1), 23-34.
- Klaassen, N, (1997). Leigh Creek an oasis in the desert, Eden Hills, South Australia, Flinders Ranges Research.
- Mabudafhasi, R. (2002). The Role of Knowledge Management and Information Sharing in Capacity Building for Sustainable Development--an Example from South Africa. *Ocean & Coastal Management*, 45(9-10), 695-707.
- Mandke, P.R. (2007). Understanding the Linkages between Tourism and Urban Poverty Reduction Using a Sustainable Livelihoods Framework. PhD Dissertation, The University of Queensland, Brisbane.
- Mazibuko, S. (2013) Understanding underdevelopment through the Sustainable Livelihoods Approach. *Community Development*, 44(2), 173-187.
- Mitlin, D. (2003) Addressing urban poverty through strengthening assets, *Habitat International*, 27, 393-406.
- Muthuri, J.N. (2007). Corporate Citizenship and Sustainable Development - Fostering Multi-Sector Collaboration in Kenya. *Journal of Corporate Citizenship*, 28(12), 73-84.
- Portugali, J. (2012). *Self-Organization and the City*. Springer Science & Business Media.
- Rakodi, C. and Lloyd-Jones, T. (2002). *Urban Livelihoods: A People Centred Approach to Reducing Poverty*. London: Earthscan Publications.
- Shen, F., Hughey, K. F. D. and Simmons, D. G. (2003) Connecting the sustainable livelihoods approach and tourism: A review of the literature. *Journal of Tourism and Hospitality Management*, 15, 19-31.
- Sen, A. (1979). *Equality of What?* Oxford: Stanford University Press.
- United Nations (2015). *Transforming our World: The 2030 Agenda for Sustainable Development*. New York: United Nations
- Veiga, M., Scoble, M., McAllister, M.L. (2001). Mining with Communities. *Natural Resources Forum*, 25(3), 191-202.
- Warhust, A. (2001). Corporate Citizenship and Corporate Social Investment. *Corporate Citizenship* (28), 57-73.
- Yin, R.K. (2003). *Applications of Case Study Research* (Vol. 34). New Delhi: Sage

publications.

Yin, R.K. (2009). *Case Study: Research Design and Methods* (Fourth Edition ed. Vol. 5). Los Angeles: SAGE Publications.

Yonehara, A., Saito, O., Hayashi, K., Nagao, M., Yanagisawa, R., & Matsuyama, K. (2017). The role of evaluation in achieving the SDGs. *Sustainability Science*, 12(6), 969-973.