



**Opportunities and challenges for women's empowerment in the gemstone value chain in
Madagascar and Thailand**

Lynda Lawson
BSc (Hons) (Psychology)
MA (Linguistics)
BA Grad. Dip. Ed.

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Abstract

Across the globe, coloured gemstones such as sapphire are produced by low technology mining and processing using rudimentary tools. Women engage in this Artisanal and Small-scale Mining (ASM) as it has low barriers to entry and can provide some level of finance to support women and their families. Women are also actively engaged in some countries as gemstone traders, cutters and jewellers.

This industry has rarely been considered from a global value chain perspective, in particular regarding the role of gender and women's opportunities for empowerment in the sector. Little attention has been paid to the economic organisation of the sector by business disciplines. In this research I present a feminist inspired examination of the opportunities for women's empowerment in the gemstone supply chain and a critique of some aspects of current formalisation processes, which may further disempower women.

Using a life history methodology, I keep the perspectives and the voices of women in this value chain at the centre of my inquiry into women's empowerment. Through listening to narratives of harshness and hope and the survival and growth of entrepreneurs and skilled craftswomen and academics, I have uncovered the multi-faceted ways in which change can occur for the better in the lives of women across the gemstone value chain in countries of origin like Madagascar and in the value addition hub of Thailand.

I argue for a reimagining of the role of women in the gemstone supply chain using approaches that foster women's empowerment and draw insights from institutional and entrepreneurship theory as well as current international standards and trends. I present a hybrid, progressive model of formalisation, which prioritises the creation and strengthening of partnerships and builds knowledge for both women working in the supply chain and customers.

This research presents the results of three field studies of women's work across the gemstone value chain, at the beginning of the value chain with Malagasy small-scale sapphire miners and traders, and one closer to the end of the value chain, in the gem hub of Thailand. I found that while the early stages of the value chain are marked by poverty, as women move up the value chain they are empowered both personally and economically and the business logic they use

moves from survival to entrepreneurship. Disadvantage for women persists across all nodes of the value chain and empowerment requires institutional work at both a systemic and an individual level. However the gemstone value chain can provide a ladder of empowerment for women both financially and personally with opportunities for women to trade and add value in ways that may not always be possible in other small-scale mineral value chains.

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Research Involving Human or Animal Subjects

Ethical Clearance Number 14.001

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List of Abbreviations

ADB	Asian Development Bank
AIGS	Asian Institute of Gemological Sciences
AMDC	African Minerals Development Centre
ANU	Australian National University
ASM	Artisanal and Small-scale Mining
ASMG	Artisanal Gold Mining
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CREAM	Centre de Recherches d'Etudes et d'Appui à l'Analyse Économique de Madagascar
DRC	Democratic Republic of Congo
ECR	Etudes, Conseil et assistance à la Réalisation
EE	Entrepreneurial Ecosystem
EITI	Extractive Industries Transparency Index
GEM	Global Entrepreneurship Monitor
Gem-A	Gemmological Association of Great Britain
GIA	Gemological Institute of America
GIT	Gem and Jewellery Institute of Thailand
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GPN	Global Production Network
GVC	Global Value Chain
GLR	Great Lakes Region
IFC	International Finance Corporation
IGM	Institut de Gemmologie de Madagascar
IIED	International Institute for Environment and Development
IISD	International Institute for Sustainable Development
ILO	International Labour Organisation
IMF	International Monetary Fund
JTC	Jewelry Trade Center
LNG	Liquefied Natural Gas
MGA	Malagasy Ariary
OECD	Organisation for Economic Co-operation and Development

PGRM	Project de Gouvernance des Ressources Minérales
SDG	Sustainable Development Goal
SIGI	Social Institutions Gender Index
3Ts	Tin, Tungsten, Tantalum
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
USAID	United States Agency for International Development
WEF	World Economic Forum
WHWB	Workplace Health and Safety Without Borders
WIEGO	Women in Informal Employment: Globalizing and Organising

Chapter 1

Introduction

I am forty-nine and I have been mining sapphires for many years. I don't know what the sapphires are for although I work with them all day. I don't feel good, I feel pain all the time but if I find some sapphires I'll buy some jewellery. You see, I bought these gold teeth. (Golden Smile, personal interview, Madagascar, 2014)

I don't want to wear someone's misery, I want to wear someone's dignity. (Orsola de Castro¹ in Archuleta, 2016, p. 158)

The contrast in the material situation of these two women could not be more stark. They are found at the opposite ends of the jewellery value chain: Golden Smile is an artisanal miner of sapphires and Ms de Castro is a jewellery consumer and fashion activist. Golden Smile struggles most days with pain and back-breaking work in the hope of once again finding that lucky stone that will lift her out of poverty and enable her to buy a little gold, the most precious symbol of wealth in Madagascar. Like many women interviewed for this research she has no idea what sapphires are used for. "Perhaps the French use them in their rockets," she surmises. Ms de Castro is a wealthy and informed consumer who has the luxury of choice in her purchases and perhaps aspires to make a difference in the lives of women like Golden Smile through moves to formalise and certify the industry. Both are consumers of jewellery and both are motivated, not just by the beauty of their purchase, but with what that purchase represents. The contrasting lives of these two women encapsulate many of the themes and complex issues that will emerge in this research as I seek to bring to the fore the experience of women working in the coloured gemstone value chain and global production network (GPN) for gemstones. Women continue to be the main end consumers of jewellery, they also design and make jewellery, and many more are engaged at the survival end of the jewellery supply chain in mining and early trading of gemstones and precious metals. These women play a vital yet underappreciated role and they are the subject of this research.

¹ Orsola de Castro is an internationally recognised opinion leader in sustainable fashion. She co-founded Fashion Revolution in 2013, a global campaign to ensure global supply chains for clothing which are "safe, clean, and fair" (Wilkes, 2019).

Chapter Overview

In the first part of this introduction I provide an overview of the research problem, objectives, and the research question which drive this work. I then introduce the research approach and theoretical framing. In the second part of the introduction I provide the context of the research with an overview of the dispersed nature of the coloured gemstone value chain focusing on the sapphire industry. The contexts for the three studies presented in this thesis are Madagascar, situated at the beginning of the gemstone value chain, and Thailand, the major hub for value addition to these stones. In this chapter I provide some contextual detail about these countries and the situation of women and conclude with a chapter-wise overview of the thesis.

1.1 Research Problem

The coloured gemstone supply chain and GPN² are part of a valuable and complex global business chain that supports the international jewellery trade with significant increases in price at each node of the chain. There is strong global interest in, and demand for, coloured gemstones³ with the supply chains and GPNs for these gemstones worth between USD 10 and 15 billion annually (Archuleta, 2016).

Much of the work done by women working with gemstones⁴ at the early stages of the value chain is in the ASM sector, a term used for low technology mining and processing. This sector is unregulated and largely informal, yet it is a livelihood for an estimated 40 million people (World Bank, 2019) across the globe with a large and growing participation by women, especially in Africa. Scholars contend that recent research into ASM has been “narrowly conceived, with little local involvement in research designs, superficial consideration of labour dynamics and negligible focus on poorer community members’ concerns” (Spiegel, 2012a, p. 486). The economic organisation of the sector has not been well researched (Hilson, Hilson, & Maconachie, 2018a). In particular, there have been few efforts to integrate ASM into the GVCs of precious metals and stones, an exception being the recent work of McQuilken & Hilson

² This research will refer to the following two terms: global value chains or GVCs (Gereffi, Humphrey, & Sturgeon, 2006) for its emphasis on the entirety of the value chain and global production networks or GPNs (Coe, Dicken, & Hess, 2008) for its capacity to examine the complex actors, power, and embeddedness that can be found in this production network.

³ Coloured gemstones refer to all coloured gemstones other than diamonds.

⁴ It is estimated that up to 80 per cent of gemstones continue to be mined by ASM (Chichester, Davis Pluess, & Momaya, 2018).

(2018). Most of the chain is in the informal sector and there are strong calls for it to be formalised. Yet there are many indications, in the research and in the field, that such formalisation could further disadvantage women who work in it.

The lives of the women who mine, trade, and add value to these stones and their contribution to this GPN have received little attention in research and are poorly understood. Comprehensive documentation that looks across the value chain for nodes of opportunity for women is lacking. It is clear that women are mining and trading gemstones in some of the poorest countries on earth, where most stones are exported in the rough and where there are few opportunities for value addition on offer. Many women are involved at the ‘survival end’ (Kabeer, 2012) of this chain in mining gemstones and, to a lesser extent, in trading these stones in Africa. The norms, institutions, and gendered patterns of authority and structural inequality that keep many at the survival end are not well understood. Similarly the opportunities that women in the gemstone trade have found to improve their lives and the lives of their families have not been examined in depth or through a theoretical lens. This reflects a lack of data and understanding of women in ASM across all minerals. Even the most recent ASM research by the World Bank (2019) has not been able to give a precise estimate of the number of women involved, stating that it is between 45 per cent and 75 per cent of the ASM workforce in Africa.

1.2 Research Objectives and Questions

In this research I set out to create new knowledge about women working in the coloured gemstone supply chain and to bring to the fore the experience of women working across this chain especially those at the ‘survival end’. I aimed to identify and understand the opportunities afforded women and the barriers they face in working in the value chain. By considering the literature on gendered supply chains in other GPNs, I hoped to develop a better understanding of the work of these women, not as isolated actors but as valuable links within the complex GVC for gemstones and jewellery. It was hoped that new insights would be created by bringing two theoretical lenses to bear on this relatively unexamined industry. Institutional theory is used to interrogate the contexts of their work and to analyse some of the seemingly intransigent issues they face including that of informality. Entrepreneurship theory provides a fresh perspective on women’s work and the opportunities that could be harnessed in future developments especially in EEs.

In this research I sought to know more about the women miners, traders, and craftswomen through whose hands these precious stones pass as they move along the GVC. Based on this knowledge, I reflect on how and why these challenges and opportunities impact women and,

in light of this, how women can find pathways to empowerment and development through their work in this industry (Cornwall & Edwards, 2014). The primary research question is thus: How can women be empowered by the ASM of gemstones and their associated supply chains given the challenges and opportunities they face?

To answer this question, I identify the opportunities and challenges facing women working in the gemstone supply chain and the factors that empower these women (Figure 1).

Figure 1 Gendered Value Chain for Malagasy Sapphire in Madagascar and Thailand



Where are the challenges and opportunities for women? What factors empower women?

Source: author

Informality in the supply chain is a significant issue in the empowerment of these women.

To address this issue I ask the secondary question:

How and why would keeping some parts of the gemstone supply chain in the informal sector be beneficial to women’s empowerment?

The research questions align with United Nations Sustainable Development Goal (SDG) 5: Achieve gender equality and empower all women and girls (United Nations, 2019).

The definition of ‘empowerment’ used in this research includes achieving a level of both economic and personal freedom. Economic empowerment is about having the financial means to support yourself and your family. Women’s personal empowerment goes to the heart of institutional disadvantage and institutional work, it is defined by leading feminist scholar Naila Kabeer (1999) as “the process by which those who have been denied the ability to make strategic life choices acquire such an ability” (p. 435). This is a more nuanced and complex

concept to capture than economic empowerment, however, it is hoped that this investigation of the lives of women working along the gemstone value chain will reflect “some of the complex richness of women’s experience” (Cornwall & Edwards, 2014, p. 5) on their pathway to personal empowerment as well as their economic progress. I provide a more detailed discussion of empowerment in Chapter 8.

1.3 Research Approach

In this research I approach the primary research questions through a qualitative investigation of the role of women in the sapphire value chain. In the second question, I will draw on recent literature to provide insights into informality for women working in this sector. The sapphire value chain was chosen because it is mined predominantly and, more than any other precious coloured gemstone, by hand (see Figure 3). There are low barriers to enter this industry and many women participate. For these reasons it is characterised by informality. While this research concentrates on sapphire, I also reference the role of women in the broader coloured gemstone industry, hence the thesis has been titled, ‘Opportunities and challenges for women’s empowerment in the gemstone value chain in Madagascar and Thailand’.

I have used a qualitative research approach and work life histories (Giele & Elder, 1998) of women miners and traders were collected in Madagascar, where the sapphires are mined, and Thailand, where they are processed. I conducted interviews with a wide range of key industry stakeholders. I used an ethnographic approach to collect other data including observations across a wide range of settings in Madagascar and Thailand.

1.4 Theoretical Framing

My conceptual framework draws on two sets of literature: institutional theory, in particular literature on informality, and entrepreneurship theory. I also draw on a feminist informed approach to research, which seeks to place women’s experiences and perspectives at the heart of the research problem (Harding, 1987).

Institutional theory has not yet been widely considered in relation to this industry. This is despite the fact that institutional failure is at the heart of some of the complex economic and social problems it is facing. For example, the informality of ASM is one of its most pressing challenges and the stakes involved in finding an appropriate response, that does not further exclude vulnerable actors, are high. The institutional literature on informality is well developed and provides insights into framing and understanding informality in the gemstone value chain.

Its characterisation of the ‘interstitial informal’ economy which has to date remained “outside the ambit of formal regulation” (Harriss-White, 2010, p. 171) provides a helpful new lens.

Entrepreneurship scholars (for example, Sutter, Bruton, & Chen, 2019) have realised the important contribution entrepreneurship theory can make in addressing pressing issues of global poverty. However, applications of such theory in challenging complex contexts, especially in Africa, are hard to find. There is talk of small-scale miners becoming entrepreneurs in the development literature, but as Hilson et al. (2018a) argue, this often seems mismatched with realities in Africa. In this research I will critically examine whether selected aspects of entrepreneurship theory can be useful in developing women’s role in the gemstone value chain, notably the research on transnational EEs (Manning & Vavilov, 2019). A review of literature pertaining to this theoretical framework is provided in Chapter 3.

1.5 The Coloured Gemstone Value Chain, Dispersed and Unregulated

In the following section I introduce two of the key issues that the gemstone industry is facing, regulation and certification, and sustainable development. I then provide a context for the thesis with a snapshot of the political economies of Madagascar and Thailand and their institutional challenges. In all of this I highlight the role of women.

Gemstone supply chains span the globe (Figure 2), they are complex, have multiple nodes, and have been characterised as “convoluted and fragmented” (Makki & Ali, 2019, p. 98). Some parts are informal and some are illegal and criminal (Naylor, 2010). Mines for coloured gemstones are often located in remote regions of high-risk nations in the Global South. Stones are not typically processed in the country of origin and the point of sale for gems and jewellery is even more distant (typically, the USA, Hong Kong, and Europe). This poses particular challenges for the regulation of the industry.

Figure 2 Typical Export Networks of Malagasy Sapphires Europe



Notes: ★ Sites of value addition, cutting, polishing, and jewellery-making.

★ Final destination of most valuable stones (including the USA).

Source: Author adapted from <https://www.freeusandworldmaps.com>

1.6 Scrutiny and Certification

There is increasing scrutiny and regulation of jewellery-related supply chains, notably precious metals, from authorities such as the US government (see United States Government, 2019) and the European Union (see European Union, 2019). In the diamond industry, De Beers has established a vertically integrated supply chain (Shortell & Irwin, 2017), and the Kimberley Process Certification Scheme for rough diamonds has, albeit imperfectly, set in place some certification practice standards (Franks, 2015). However, coloured gemstones, cycling through multiple informal and formal networks from mine to market, are not regulated or traceable. The industry is yet to establish a responsible, sustainable, verifiable mine-to-market supply chain mechanism. Globally, this could change with the Organisation for Economic Co-operation and Development (OECD), in its Guidance for Responsible Mineral Supply Chains, calling on industry to regulate and formalise the sector “to help companies respect human rights, observe applicable rules of international humanitarian law ... and cultivate transparent

mineral supply chains and sustainable corporate engagement in the mineral sector” (2016, para 3).

Industry working groups are being recruited to assist in this, for example, the World Jewellery Confederation and the Coloured Gemstone Working Group, a powerful group of high-end stakeholders including brands such as Tiffany & Co., Swarovski, and large-scale miners such as Gemfields and Muzo.

1.7 Sustainable Development and Gemstones

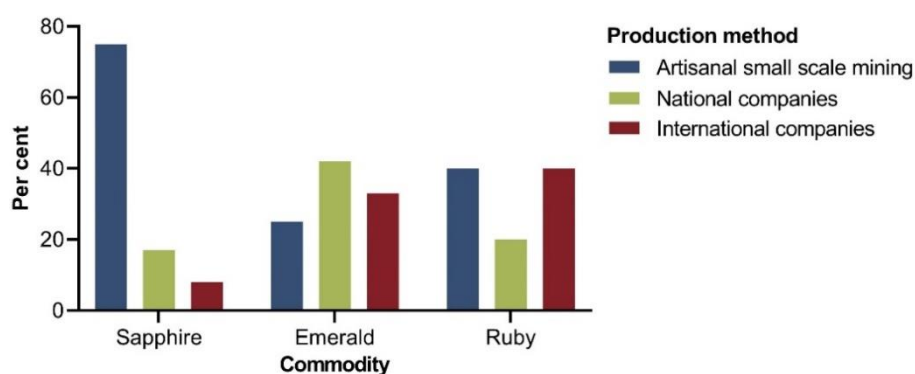
The United Nations SDGs have 10 years to reach the goal of reducing poverty. Goal 5 is particularly pertinent for this work. While the United Nations Development Programme (UNDP) has already outlined how large-scale mining could contribute to the achievement of this goal, the role of ASM in enabling gender equality is yet to be elaborated (World Bank, 2019). Through this research I hope to contribute to a better understanding of the ways women and girls can be empowered by ASM of gemstones and their associated supply chains by examining the opportunities for women in the Malagasy and Thai sapphire value chains. This could also be appreciated by the growing group of consumers who want to know more about the origin of important personal purchases like jewellery.

1.8 The Sapphire Supply Chain

Sapphire is the gem name of the mineral corundum, Al_2O_3 , for all colours except red, which is known as ruby. It has been famous for millennia as a precious stone of exceptional colour and durability, which make it particularly prized by jewellers. Since the late 1990s, Madagascar has been the world’s largest source of sapphire (Shigley, Laurs, Elen & Dirlan, 2010).

The Madagascar trade in sapphire is heavily controlled by Sri Lankan, Thai, and some African traders. Stones for the most part leave the country in the rough. Due to the large number of informal exports, the official export quantities (Table 1) are certainly underestimated; export figures for the past five years are not available. Many sapphires are sent to Sri Lanka, India, or Thailand where they are cut and polished. Thai estimates show that 80 per cent of sapphires processed in Thailand are from Madagascar (GIT interview) and are then exported to Europe, Hong Kong, and the USA (Figure 2).

Figure 3 Comparison of Global Production Methods of Precious Stones



Source: Adapted from Shortell and Irwin (2017).

Table 1 Export Figures of Malagasy Rough and Polished Sapphires for 2015

Mineral	Quantity (g)	Value (USD)
<i>Rough sapphires</i>	3,056,763.07	1,576,811.71
<i>Polished sapphires</i>	1,793.58	82,634.69

Source: Ministry of Mines and Petroleum, Republic of Madagascar.

Note: 1 USD = approximately 3,022 MGA (15 August 2016).

1.9 Madagascar: Sapphire Riches in a Land of Poverty

Madagascar is an island in the Indian Ocean 587,000 square kilometres in area. It has a high percentage of endemic species and also has a treasure trove of natural resources such as oil, rare timber, and minerals, from heavy mineral sands, mica, nickel, graphite, gold, lithium, rare earths, iron ore, coal, and chrome to a vast array of precious and semi-precious gemstones including some of the world’s finest sapphires. It is said that only 10 per cent of the country is “not gem bearing” (Hughes, 2017, n.p.). Madagascar is also susceptible to extreme weather events and climate change represents a serious threat to its biodiversity. Large parts of the country are now deforested mostly as a result of agricultural clearing practices. Eighty per cent of the population is rural and agriculture is the primary economic activity. Lack of investment in infrastructure means that road access to many areas is slow to impossible (World Bank, 2014b). Agricultural productivity is low and the sector is desperately in need of technical assistance (World Bank, 2011, 2014a, 2014b). Madagascar, particularly in the south, is facing hunger challenges categorised as ‘alarming’ on the Global Hunger Index (World Food Programme, 2019).

Madagascar has a young and rapidly growing population of over 27 million. Half the population is less than twenty years old and the population is growing at about 600,000 people a year (International Monetary Fund [IMF], 2015b). Poverty is extreme, 90 per cent of the population lives in extreme or absolute poverty, that is, they cannot afford to pay for food (World Bank, 2014a). Poverty has increased markedly in the past 10 years and Madagascar is ranked one of the poorest countries in the world following the Democratic Republic of Congo (DRC), Liberia, and Burundi: these are all countries that are recovering from civil war. Madagascar has not experienced civil war and thus its economic struggles perplex economists, they are closely linked to a series of political crises, most notably a political coup in 2009 (Razafindrakoto, Roubaud, & Wachsberger, 2018).

The face of poverty is rural, mostly young and often female. Single women are significantly poorer than single men, with many female-headed households experiencing extreme poverty following abandonment by the male provider. The worst affected areas are in the extreme south (IMF, 2015b) from where many of the women in this study have migrated. Education indicators are deteriorating with enrolment in primary schools falling since 2009 and about half a million children who should receive primary education, do not. The trend is worse in rural areas (World Bank, 2014a, 2014b). Poverty is growing fastest where the household head has no formal education (World Bank, 2014b). Systemic and petty corruption is widespread (Transparency International, 2019). The legal framework is adequate but there are few resources to enforce it.

1.9.1 History

Madagascar was colonised by France between 1896 and 1972 and France remains a powerful business and political influence. Some argue that the process of assimilation implemented by the French in its colonies has had a particularly deleterious impact on Madagascar's subsequent political, social, and economic history:

Through the exaltation of the French Republic and deprecation of the pre-colonial system of government conducted primarily in the educational institutions, the experience of colonisation shattered in the minds of the elite any self-confidence, any pride in the pre-colonial past or in their own role in the administration. (Rabenoro, 2016, p. 79)

Although gold was mined in Madagascar in the mid 19th century by French interests, sapphires were not. Sapphires have been known to exist in Madagascar for some time and deposits of sapphire are marked on early French geological maps⁵ but sapphires were not mined in any significant way until the until the 1990's (Cartier, 2009).

Since independence there have been numerous coups, most recently in 2009, and long periods of political instability and stagnation which have impacted severely on the country's development in general and the gemstone trade in particular. In 2013, Madagascar was classified as a fragile state:

[A] state with weak capacity to carry out basic governance functions, that lacks the ability to develop mutually constructive relations with society. Fragile states are also more vulnerable to internal or external shocks such as economic crises or natural disasters. (OECD, 2013, p. 15)

Madagascar combines extreme poverty and aid dependence with all the above-mentioned features of a fragile state. In 2019, Andry Rajoelina became president in a reasonably free and fair election. There is much to do to restore stability to the country after many years of transitional government following the political coup in 2009.

1.9.2 The Status of Women in Madagascar

There is very little published on the status or the history of women in Madagascar. Madagascar, prior to colonisation, was a country ruled by a series of powerful queens and their families. Women had a reasonably liberated role in traditional society. One of the first acts of Joseph Gallieni, the French Governor General sent to take control when France annexed the country in 1896, was to send the queen into exile and to execute the male members of her family. It is argued by Rabenoro (2005) that local women lost power and status as France imposed on Madagascar the standards of French women at the end of the nineteenth century.

It is true that men and women are equal before the law and in 2000 a National Bill was passed to promote women, yet there are few mechanisms to promote gender parity. There are laws in place but they are not enforced partly because levels of literacy and education among women are so low. The civil marriage legislation states that the husband is the head of the household, and in the case of divorce women typically lose the right to own land (Widman, 2014). One in every five households is headed by women, most of whom are divorced or abandoned but this number also includes single mothers (Rabenoro, 2004). In customary law children 'belong' to

⁵ Interview with miner Antananarivo (2014).

the father and may be claimed by the father even when the mother has raised the child without financial support.

The situation of women in Madagascar is extreme. The estimation of social risk for Malagasy women, as per the OECD's Social Institutions and Gender Index (SIGI, 2019), moved from medium to high in 2019. Madagascar has the earliest average age for first pregnancy in sub-Saharan Africa. Contraception is not widely available or understood. Although infant mortality rate has fallen significantly, the number of women who die in childbirth or from complications due to self-induced abortions has not fallen (United States Agency for International Development [USAID], 2014). The attrition of girls from school at puberty is over 50 per cent (Centre de Recherches d'Études et d'Appui à l'Analyse Économique de Madagascar [CREAM], 2013). Most women are working in the informal sector and Madagascar is one of the lowest ranking nations in terms of women's economic opportunity on *The Economist's* Women's Global Economic Opportunity Index (Economist Intelligence Unit, 2012). A recent study found a strong relationship between teen pregnancy and unpaid work in the informal sector with a 90 per cent probability of teenage mothers "working as informal, unpaid family workers [which] raises the concern that there will be deleterious consequences for a women's work opportunities across their life-course" (Herrera, Sahn, & Villa, 2019, p. 300).

Rabenoro sums up the situation well:

In Madagascar neither modern laws nor customary laws directly oppress women. However, in practice, the uncomfortable sway between tradition, the essence of which is eroding, and modernity, which is still imperfectly understood, provides a subtle opportunity for the oppression of women and for women to suffer other forms of violence. It provides the leeway for girls to become unmarried mothers and become heads of households when they are economically unprepared for this responsibility. Thus, women suffer institutional violence due to the absence of laws, both modern and customary, capable of protecting their rights. (2005, p. 14)

1.9.3 Mining

Madagascar has two operational large-scale mines and one under construction. There are currently 1,300 ASM licences and up to a million miners (Malagasy Ministry of Mines and Petroleum, personal communication, 1/8/2019). The granting of new permits has been frozen since the coup in 2009, and while the laws for obtaining permits and operating mines are in

place, they are not able to be enacted or enforced because of political crises, uncertainty, and the lack of even the most basic resources such as vehicles and staff.

Between 2003 and 2012, the World Bank financed the Republic of Madagascar Minerals Resources Governance Project (Project de Gouvernance des Ressources Minerales or PGRM). While little progress was made for the ASM sector, one lasting legacy was the creation of the Institut de Gemmologie de Madagascar (IGM), an institute providing training in lapidary and gemmology to the highest international standards; the fees charged are however too much for small-scale operators (Etudes, Conseil et assistance à la Réalisation, [ECR], 2012). Other initiatives such as the establishment of regional offices to regulate small-scale mining have never been realised (World Bank, 2012). Although the official exports in Table 1 certainly underestimate the real export situation, it is clear that Madagascar is failing to reap the benefits of the sapphire trade by doing little value addition in country. Madagascar is said to be losing millions of dollars annually to illicit trade from its ASM sector (Extractive Industries Transparency Index [EITI], 2019). Very little revenue has returned to the state or worse, has been misappropriated (Duffy, 2007). The industry is dominated by foreign buyers who have little interest in any value addition in the country.

1.9.4 Atsimo Andrefana

This research is focussed on the southwest region of Madagascar known as Atsimo Andrefana, in the sapphire mining areas around the town of Sakaraha. The region is heavily dependent on agriculture and is one of the poorest regions in Madagascar with particularly disadvantaged conditions for women. Artisanal mining of gemstones is widespread and the commercial monopoly of their sales, mostly by Sri Lankan and Thai buyers, is well established in the mining towns. Government regulation has been largely absent and the application for formalisation and licences is beyond the reach of most miners. To date there is no official office of the Ministry of Mines in Sakaraha.

1.9.5 Women's Involvement in ASM

ASM in Madagascar has usually been seen as a masculine frontier where women follow and assist men or where the focus has been on women as sex workers. However, research by Canavesio (2013) suggests women's roles and motivations are more complex and demonstrate a level of skill and agency which has not been acknowledged until now. For example, women may work with family members or with partners from traditional marriages or 'sapphire marriages', relationships where sex is traded for access to the mineral. They may also work

with other female friends or in a clan group and tend to use their money wisely to save and care for their families.

1.10 Thailand: A Sapphire Trading Hub

Thailand is one of the most successful economies in South East Asia with its annual economic growth set to grow by 3 per cent in 2020 (ADB, 2020). With a population of close to 70 million, inequality between the rich and the poor is declining, although the country still faces deep poverty in some areas (ADB, 2019). Thailand has an informal workforce of 24.6 million (62.6 per cent), meaning that these workers make a major contribution to building the nation's economic capacity, albeit without rights to occupational health and safety and other workers' entitlements (Kongtip et al., 2015).

1.10.1 Women in Thailand

Women's participation in the formal economy is 45.7 per cent, which is higher than India and Sri Lanka but lower than neighbours like Vietnam (World Bank, 2018b). Many Thai women complete university studies, in fact, more women than men have tertiary qualifications (Romanow, 2012). They can have good positions and access to wealth. However, this should not be seen as a sign of gender equality in Thai society. Each workplace has its own hierarchy, which may not always support women and validate their experience. Women are especially stigmatised for illicit sexuality and Thailand has non-trivial rates of domestic violence and sexual assault (Mills, personal communication, 23/1/2019).

1.10.2 The Thai Gem and Jewellery Industry

Thailand is one of the world's most vibrant gem and jewellery trading centres and the major global hub for the cutting and polishing of ruby and sapphire (Shortell & Irwin, 2017). The gem and jewellery sector is Thailand's fifth largest industry (Gem and Jewellery Institute of Thailand [GIT], 2017). It has been the world's leading exporter of precious coloured gemstones for eight years (GIT, 2017) with overall exports in 2017 valued at USD 1.9 billion, an increase of 12.4 per cent from the previous years. The trend is particularly strong for polished stones and roughly half of these are sapphires (Shor, 2013); the export of polished sapphire has increased by 17.6 per cent (GIT, 2017).

The industry receives wide ranging institutional support from the Thai government both in terms of business incentives, research and and education. I discuss this in detail in Chapter 7.

1.10.3 Employment in the Gem and Jewellery Industry

The gem and jewellery industry employs 900,000 workers including 37,000 business operators. The coloured stone cutting and polishing industry alone employs at least 20,000 workers in the formal sector (GIT, personal communication, 2/2/2018). However, given that two-thirds of the Thai population work in the informal sector (Kongtip et al., 2015), the total number of cutters and polishers is likely to be much higher, with a high proportion of women in home-based work (HomeNet Thailand, 2012).

Today, Thailand's own sapphire mines are largely depleted, and Thailand must draw almost entirely on imported rough stones from other parts of the world to support its industry (Roy Chowdhury & Abid, 2018; Hughes, 2017; Shor & Weldon, 2009). Increasingly, it is sourcing stones from Africa through traders working in Africa and Indian middlemen, most sapphires are sourced in Madagascar .

1.10.4 Women in the Gem and Jewellery Industry

Compared with South Asia, women are much more engaged in this industry at every level, from presidents of jewellery companies and leading academics to gemmologists, jewellers, designers, and stone cutters and polishers with a high proportion of women cutters and polishers in home-based work (HomeNet Thailand, 2012). These household industries are found across Thailand, in Bangkok, or clustered near the gemstone-producing centres of Chanthaburi and Tak near the Myanmar border, and in north eastern areas of Chiang Mai and Kanchanaburi (Cross, van der Wal, & de Haan, 2010).

1.11 Thesis Outline

Chapter 1: Introduction

In this chapter I provide an introduction to the research problem: the inequitable position of women in the gemstone supply chain. I then elaborate the aim of this research which is to create new knowledge about what has enabled women and hindered their activity in this chain. I frame the research in selected aspects of institutional and entrepreneurship theory to better understand some of the complex issues the women face and the strategies they have used to make a life for themselves and their families. The aim is also to inform future directions to create a more inclusive value chain. I elaborate two research questions and I present the sapphire value chain and the country contexts of Madagascar and Thailand.

Chapter 2: Methodology

In this chapter, I present the overarching research approach which is feminist informed and reflexive. By using this approach I seek to bring to the fore, and listen to, the voices of those who have not previously been heard or who are at the margins of the bigger picture of the gemstone industry. The methodology is qualitative using life histories, interviews, and focus groups. I take inspiration from the work of Giele and Elder's (1998) Life Course research and use an ethnographic approach to fieldwork. I give details of the steps taken to complete the research over the past five years, for example, the process taken to obtain ethical approvals and select sites and participants. I give a global overview of the research method used for each study. I consider my positionality and reflect on the experience of fieldwork and the shortcomings of the methodology. I highlight the vital role played by my research assistant and translator.

Chapter 3: Literature Review: Institutional Theory, Entrepreneurship, and Entrepreneurial Ecosystems

The ASM of gemstones, the informality of the industry, and finding ways of enabling women to benefit fully from their participation in supply chains are among the most complex and challenging issues facing the ASM industry and development agencies today. These multiple challenges are replete with institutional questions and entrepreneurial possibilities. For this reason, in the literature review in Chapter 3 I begin with a survey of selected aspects of the institutional literature introducing the key concepts of institutional voids, institutional work, and proto-institutions. I then use these concepts to theorise and discuss issues related to gender and informality in the workplace both in Chapter 3 and in Chapter 8. I then provide a survey of recent literature which addresses the challenge of applying entrepreneurship theory in contexts of poverty in Africa. I review effective approaches and hindrances to business development and discuss the value of Entrepreneurial Ecosystem (EE) theory and practice.

Chapter 4: Literature Review: Global Value Chains, Global Production Networks, Supply Chains, and Women in Artisanal and Small-scale Mining

The small-scale mining of gemstones and other precious metals is part of a large and complex value chain both in the country of origin and in the many nodes the gems pass through. This activity is generally an under theorised area and has rarely been considered from a global supply chain or gendered perspective (Hilson, Hilson, Siwale & Maconachie, 2018b). This chapter begins by giving key concepts in the theory of GVCs and GPNs before reviewing in

detail their application in the extractive and informal sectors. I then review the literature on gendered agricultural supply chains in Africa and their governance to provide insights into the gemstone supply chain, with regard to the impacts of formalisation on women. Recent literature on women in the small-scale mining and informal trading sectors is then reviewed.

Chapter 5: Artisanal and Small-scale Mining of Sapphires in Madagascar: The Work Lives of Women Miners

In this chapter I present the first publication based on field interviews undertaken with women sapphire miners and key informants in southwest Madagascar in 2014. The research questions for this paper were: What does the work life course of a woman in gemstone mining look like? Why do women take up ASM? How have they learned their skills? What have been the turning points in their work life course? How do they manage their families? Does it provide a reliable source of income?

Chapter 6: Women Sapphire Traders in Madagascar: Challenges and Opportunities for Empowerment

In this chapter I present the second publication based on field interviews undertaken with women sapphire traders and key informants in southwest Madagascar in 2015. The research questions for this paper were: How can women traders be empowered in view of the current opportunities and challenges? How could proto-institutions form the basis of a cooperative or a small company if regulatory and financial settings for these women improved and there was an opportunity for them to formalise their trade?

Chapter 7: Women Working in the Thai Coloured Gemstone Industry: Insights from Entrepreneurial Ecosystems

In this chapter I present the third paper based on field interviews undertaken with women working in the gemstone business in Thailand in 2018. The research questions for this paper were: How has the Thai gemstone EE enabled or hindered women's participation? How have women impacted on the Thai gemstone EE? How can lessons learnt from the experience of women in Thai gemstone EE be applied further upstream the gemstone supply chain?

Chapter 8: Discussion and Conclusion

In this chapter I synthesise and then reflect on the key findings of the research in relation to empowerment and the research questions:

- How can women working in gemstone value chain be empowered by the ASM of gemstones and its associated supply chain given the challenges and opportunities they face?
- What are the challenges and opportunities facing women in the gemstone supply chain?
- What are the factors that empower these women?
- How and why would keeping parts of the gemstone value chain in the informal sector be beneficial to the women who work in it?

I also discuss the way in which this research has contributed to the literature and future research.

Chapter 9: Conclusion

Drawing together the findings, I make several recommendations. Notably, I propose a model for the progressive formalisation of women's work in the gemstone value chain permitting a level of variety and hybridity. I discuss the role of an EE, which includes significant support from transnational industry partnerships to support women's empowerment in the supply chain. I discuss the contribution of this work to theory and the literature on ASM, and highlight the value of viewing this research topic through the lenses of institutional, entrepreneurial, and GVC and production network theory and literature. I give key learnings from the research along with its limitations and suggest future research pathways.

Chapter 2

Methodology

Chapter Overview

In the first section of this chapter I provide an overview of the method used to identify the research problem and question through gap analysis and problematisation. I discuss the assumptions made by the research and the boundaries delineated by those assumptions. My overall research approach is identified as feminist informed and qualitative; I note the importance of recognising the positionality of the researcher in relation to the participants and the importance of the reflexivity of the researcher. I outline a conceptual framework which encompasses a feminist informed approach to methodology and two conceptual lenses of institutional and entrepreneurship theory. I describe the method and the rationale behind this approach along with the method for site and participant selection in Thailand and Madagascar. In total 35 life histories were recorded along with 6 focus groups totalling over 90 participants, 42 key informant interviews, and many hours of observations. All were undertaken on site over a period of four years. The data was translated, transcribed, and analysed reflexively and thematically using Elder's work life categories and turning points and other inductively and deductively derived categories. I then provide a detailed summary of the method used to survey the literature and review documents including path-defining studies (Alvesson & Sandberg, 2013). Finally, I give details of the research pathway including the procedure for ethical approval and the key dates of the research.

2.1 Identification of Research Problem and Questions

The research problem I identified for study in this thesis did not initially come from the literature but from my own engagement in the field with women sapphire miners in Madagascar over five years. The motivation was first to tell the stories of women's lives and their struggles, but also their agency and work to provide a future for their families. My aim was to question some existing views and research which had not considered, or had underestimated, the role women play, and the work they do in the sapphire fields.

Framing this experience in the literature of institutions and entrepreneurship enabled me to broaden the scope of the research and ask more precise research questions. Understanding the role of institutional failure and institutional voids (Mair & Martí, 2009), both framed my thinking about the challenges women faced and helped me understand the way women worked around these voids to create opportunities. Likewise, the entrepreneurship literature, in

particular EE theory (Audretsch, 2015; Spigel, 2017), provided a useful starting point for a discussion of the factors that enable and nurture entrepreneurship.

2.1.1 Formulating Research Questions

The research questions were developed from my experience, my reading of the literature, and refined through conversations with my advisory team. By using syntax such as ‘how’, and ‘what factors’ and ‘why’, the questions were designed to open up space for analysis (Alvesson & Kärreman, 2011) rather than generate purely descriptive data. Thus, the overarching research question is:

How can women be empowered by the ASM of gemstones and its associated supply chain given the challenges and opportunities they face?

With secondary questions the aim is to identify specific issues, for example:

What are the challenges and opportunities facing women in the gemstone supply chain? What are the factors that empower these women?

Problematising informality

The dilemma posed by the informality of the industry has emerged both from reading institutional and entrepreneurship theory, my own experience in the field, and changes in the discourse of supra-national organisations such as the World Bank and the United Nations Economic Commission for Africa (UNECA) over the past five years. Reading Alvesson and Sandberg (2013), I have tried to formulate a research question which could problematise the issue of informality and open up new ways of thinking about it by “questioning underlying existing theory” (p. 2). For example, the underlying theory of the supra-nationals’ current approach to informality is that informality is not a viable option for business and that all economic activity in this sector should be moved as quickly as possible into the formal sector. My research questions such underlying theory, particularly with regard to women’s empowerment and asks:

How and why would keeping parts of the gemstone value chain in the informal sector be beneficial to the women who work in it?

Research assumptions and boundaries

In developing a conceptual framework for this research, it is important to consider the assumptions of the research and its boundaries, those “aspects of the real world embedded in

our theorizing that delineate arenas where the theory is likely to apply” (Dubin, 1978, in Wood, Bakker, & Fisher, 2018, p. 7).

In this research I seek to draw conclusions about the empowerment of women in the ASM gemstone value chain based on research with women in one region of Madagascar and gem industry hubs in Thailand. The first assumption of this research is thus related to place; it assumes that theory and new knowledge generated from this research in these two areas will be generalisable to other women in other countries and other parts of the value chain.

The second assumption relates to the commodity chain being examined. The cases I examine here, particularly those presented in Chapter 5 and 6, focus on women’s work in the sapphire trade. It is assumed that theory and new knowledge generated about this gemstone value chain can be generalised to other chains.

Thus, boundary conditions related to place and commodity may delimit the area where new knowledge may apply. As this is a new area of research with few other precedents to support it, further research would be required to determine the generalisability of theory and knowledge generated here to other contexts.

2.2 Overall Research Approach

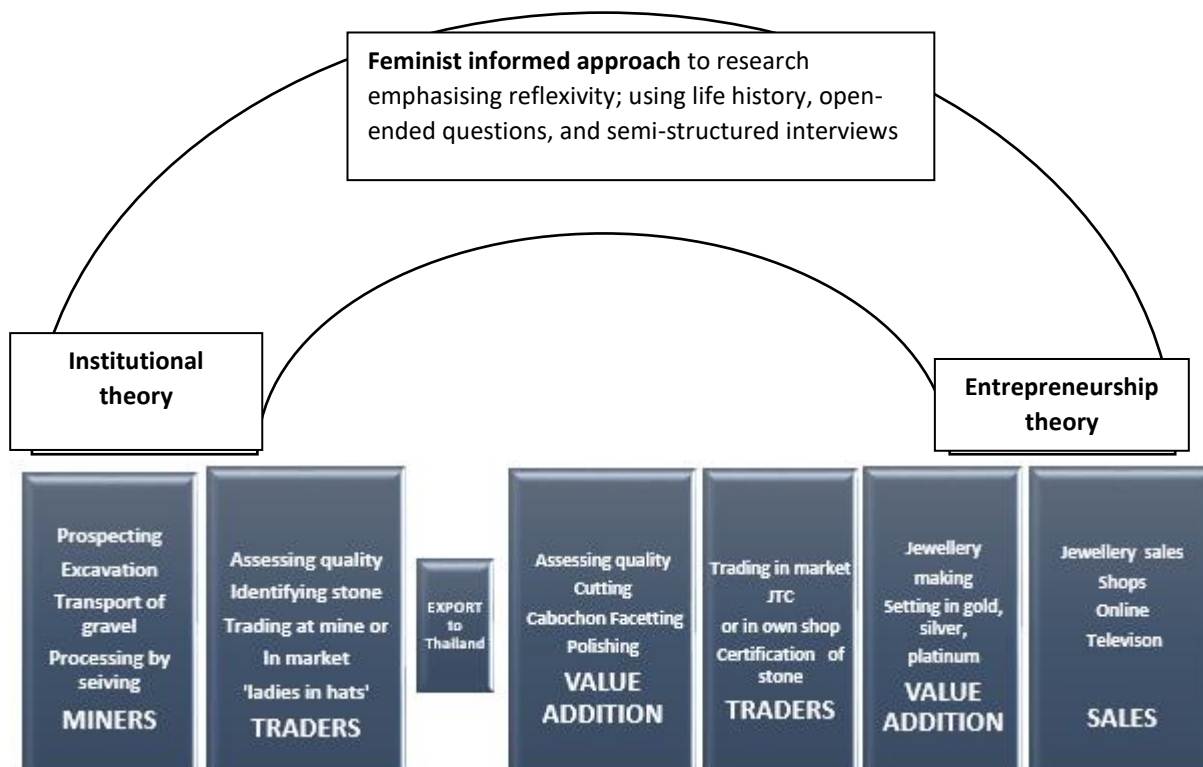
Women’s participation in the sapphire value chain is new research in a complex and fragile context where building trust with the research participants and those around them was essential. My choice of Life Course methodology and life history was motivated by a feminist inspired motivation to make visible the lives of women and to capture and not limit the story of female miners and traders. This might have been the case had I conducted a quantitative survey. Aligning broadly with a feminist informed ethnographic research approach (Ackerly & True, 2010), the aim was to give women, who have rarely had their voice heard, an opportunity to tell their story in their own words. This required an approach that was broadly qualitative, enabling methods of data collection and generation that were flexible and sensitive to this context, and could produce rich, nuanced, and detailed data (Mason, 2002). Likewise, the methods of analysis were qualitative, aiming “to produce rounded and contextual understandings” (Mason, 2002, p. 3) of the lives of women in the field. Together with a detailed analysis of the literature, this analysis was used to build explanations and arguments about how women can be empowered through their participation in the global gemstone value chain (Mason, 2002). A detailed breakdown of the methodology for each study is provided in Chapters 5, 6, and 7.

2.2.1 A Feminist Informed Methodology

The conceptual framework for this research draws on institutional and entrepreneurship theory but is overarched by a feminist informed approach research to methodology (Ackerly & True, 2010) in Figure 4. This is characterised by a concern to capture the voice of those who have been silenced, excluded, or marginalised in society. Key to this research are the three key methodological features of the best feminist analysis which Harding (1987) outlines as follows:

1. It places women’s experiences and perspectives at the heart of the research problem and uses this as a reference point.
2. It designs research for women to provide explanations of social phenomena for women, not government or funding bodies, in the first instance and addresses the nexus between knowledge and power. As in the best feminist research, it insists on practice and principles that are alert to what disadvantaged groups want to know (Harding & Norberg, 2005).
3. It locates the researcher in the same critical plane as the overt subject matter, valuing the contribution of the researcher’s reflexivity and self-reflection.

Figure 4 Conceptual Framework for This Research



Malagasy-Thai gemstone supply chain – women’s roles

Source: Author

2.2.2 Positionality and Reflexivity

Positionality and reflexivity are important concerns for feminist ethnographic research. Positionality refers to the positioning of the researcher in relation to the participant group, understanding that the position adopted by a researcher affects every phase of the research process, from design to how outcomes are disseminated and published (Rowe, 2014).

Reflexivity describes research that can “turn back upon and take account of itself” (Clegg & Hardy, in Alvesson, Hardy, & Harley, 2008, p. 480). This is a hallmark of feminist research (Harding, 1987) and in the feminist tradition this ‘turning back’ should have at its heart the participant and their world, and be vigilant about the impact of the research on both the participants and the researcher. Reflexivity values the location of “the subjective in knowledge” (Currie & Kazi, 1987, p. 81) and stands in stark contrast to the pursuit of objectivity of positivist paradigms.

Adopting a feminist stance means that I am committed to being located in the same plane as the participant (Harding, 1987) and to attempting to reduce the power differential between them (Burgess-Proctor, 2015). One way of approaching this ambitious imperative is for me to be continuously aware of my own positionality and reflexivity. This means taking the time to consider the effect of my identity, role, and position on participants as well as on the data collected. In a long project such as this one, the researcher’s position has evolved over time with trust, confidence, and friendship with the interviewed women. The ways these changes affect the manner in which data is collected and interpreted also need to be considered (Johnstone, 2019).

“Bringing multiple perspectives” is another enabler of reflexive practice and it is argued that “it is the accumulation and the juxtapositioning of these perspectives that creates reflexivity” (Alvesson et al., 2008, p. 482). For example: How can comparing different theoretical perspectives, such as institutional and entrepreneurial theory, on an issue like small-scale mining provide new ways of understanding and perspectives? By using such multiple perspectives I hope to “break the habits of routine thought” and “see the world as though for the first time” (Cooper & Burrell, 1988, in Alvesson et al., 2008, p. 453).

Reflexivity can also be enhanced through multi-voicing practices (Alvesson et al., 2008). Instead of the researcher having the main, privileged voice, the researcher and the research participant together negotiate the language used to describe the experience of the participants. This has the effect of “weakening the claims of the former to report reliably on the experiences of the latter” (Alvesson et al., 2008, p. 483). For example, during the Thai field trip, I showed the life history I had written about them to each trader and incorporated their feedback. In one

instance, this was quite a sharp and unsettling surprise, as I had not understood the sensitivity of some issues for one of the women interviewed. This was indeed an instance of reflexive research practice turning back and taking account of itself.

2.2.3 *Life History Approach*

The feminist informed methodology with its emphasis on the above-mentioned reflective practices required an approach to data collection that could be flexible enough to incorporate these concerns and give women an opportunity to tell their story in their own words. I used a life history approach wherever possible with “oral interviews being particularly valuable for uncovering women’s experiences” (Anderson & Jack, 1991, p. 11). This approach also fits with the vibrant oral tradition of storytelling in Africa and Madagascar in particular. Experienced African field researchers comment about the value of this approach particularly for working with rural women in the field who may be intimidated by questionnaires and surveys. Monson (2003), researching the impact of the railway on women’s lives in Tanzania, commented:

Rather than stimulating talk, my questions seemed to make people uncomfortable, confused, and eventually silent.... I began to rely increasingly on life history narratives in order to learn about changes in the lives of people.
(p. 313)

Giblin (2003) reflects on the way fieldwork can lead to silences and also to narrative openings. The research methodology I used here was designed to open narratives about women’s lives and their experience of the gemstone supply chain.

The life history approach was grounded in two established areas of research: Methods of life course research by Giele & Elder (1998) and the Panos Oral testimony project and its detailed methods for collecting stories in Listening for change by Slim and Thomson (1993).

2.2.4 *Life Course Research*

The Life Course research paradigm is widely used across a range of disciplines, for example, medicine, social sciences, such as developmental psychology, and is more recently referenced in studies of entrepreneurs (Baker & Welter, 2017) and development studies, such as to investigate gender, work-life course, and livelihood strategies in a south Indian fish market (Hapke & Ayyanketil, 2004). The approach was first conceptualised by Elder as part of his longitudinal study of the impact of the Great Depression on children and their subsequent adult lives (Elder, 1974); he later refined this to focus on time, human agency, and social change (Elder, 1994). Giele and Elder (1998) elaborated a method for Life Course research identifying

four central themes that determine the shape of the life course: location in time (cultural background), linked lives (social integration), human agency (individual goal orientation), and timing of lives (strategic adaptation) (p. 8). Heuristics which emerge are life transitions or turning points, trajectories, sequences, and life events. The methodology can be prospective (returning to the interview at repeated intervals) or retrospective. This research takes a retrospective approach—recapturing a long period of history, the women’s work lives, and migration stories from a single interview. The life course is an example of longitudinal research, a highly valued research approach, which permits the researcher to look back in time and record antecedents of current events and transitions. Such research has “given the social sciences their Hubble telescope” (Butz & Torrey, 2006, p. 1898).

Chapter 5 was sent to Elder who confirmed the suitability of this methodology for this population and recommended triangulation of the accounts with key informants (personal communication, 1/8/2015). This has been undertaken with interviews and focus groups.

2.2.5 An Ethnographic Approach

Although I was not able to spend the many months in the field that are required of a full ethnographic study (Hammersley & Atkinson, 2007), repeated visits to the same sites over the past 5 years and a total of at least 60 days spent in the mining region mostly in the main mining town of Sakaraha, means that I have been able to incorporate many elements of the field ethnographic approach. Key elements of ethnographic work are oral accounts, collection of artefacts, digital recording of observations and accounts, and working with local gatekeepers (Hammersley & Atkinson, 2007). Each of these elements has been fulfilled in this research.

The Life Course methodology prioritises oral accounts and in this research there are 35 life histories and digital recordings of interviews, artefacts, and images including film, audio, and photos. Likewise, triangulation, respondent validation, and grounded theorizing, key elements in ethnographic analysis (Hammersley & Atkinson, 2007), are used extensively in this work. Triangulation, the checking of inferences from one set of data sources with another, occurred regularly through key informant interviews (for example, women’s health details in life histories were checked against the local doctor’s accounts) and also with my local research assistant, local authorities, and academics. This also provided a level of external validity for this research (Payne & Payne, 2004). Triangulation and a validity check were also provided by showing some participants the narrative accounts I had created of their life history and asking for their feedback. Not only did this provide a check of my accuracy, it also enriched my

understanding of the social meaning of these accounts (Adelman, 1997, in Hammersley & Atkinson, 2007).

Grounded Theory (Glaser & Strauss, 1967) or grounded theorising as Hammersley and Atkinson (2007) emphasise, is an “activity not a procedure”. It refers to the way in which theory or other research products, such as descriptions and explanations, is “developed out of data analysis and subsequent data collection is guided strategically by emergent theory” (p. 158). Grounded theorizing was a concept in evidence in the ‘second round’ of life histories in 2015; for example, the 2014 life histories had revealed new knowledge about drought and climate change as a push factor in women leaving the South, questions about this were included in the 2015 interviews.

2.3 Field Research

2.3.1 Choice of Sites and Subject Selection

The aim of this research is to hear the voices of women working in various ways along the gemstone value chain. For this reason I started with women sapphire miners at the beginning of the chain at the site of the biggest sapphire mining rush area in Madagascar, the mines close to Sakaraha. I then worked with the sapphire traders in the sapphire towns of Sakaraha and Ilakaka, some of the largest trading places for sapphire globally. Finally, I chose the global hub of the coloured gemstone trade, the Thai cities of Bangkok and Chanthaburi, to meet women working with sapphire at the end of the value chain. They were working across the value chain with sapphires in cutting and polishing, jewellery-making, and design, and were business owners, buyers, supervisors, gemmologists, and gem scientists and researchers.

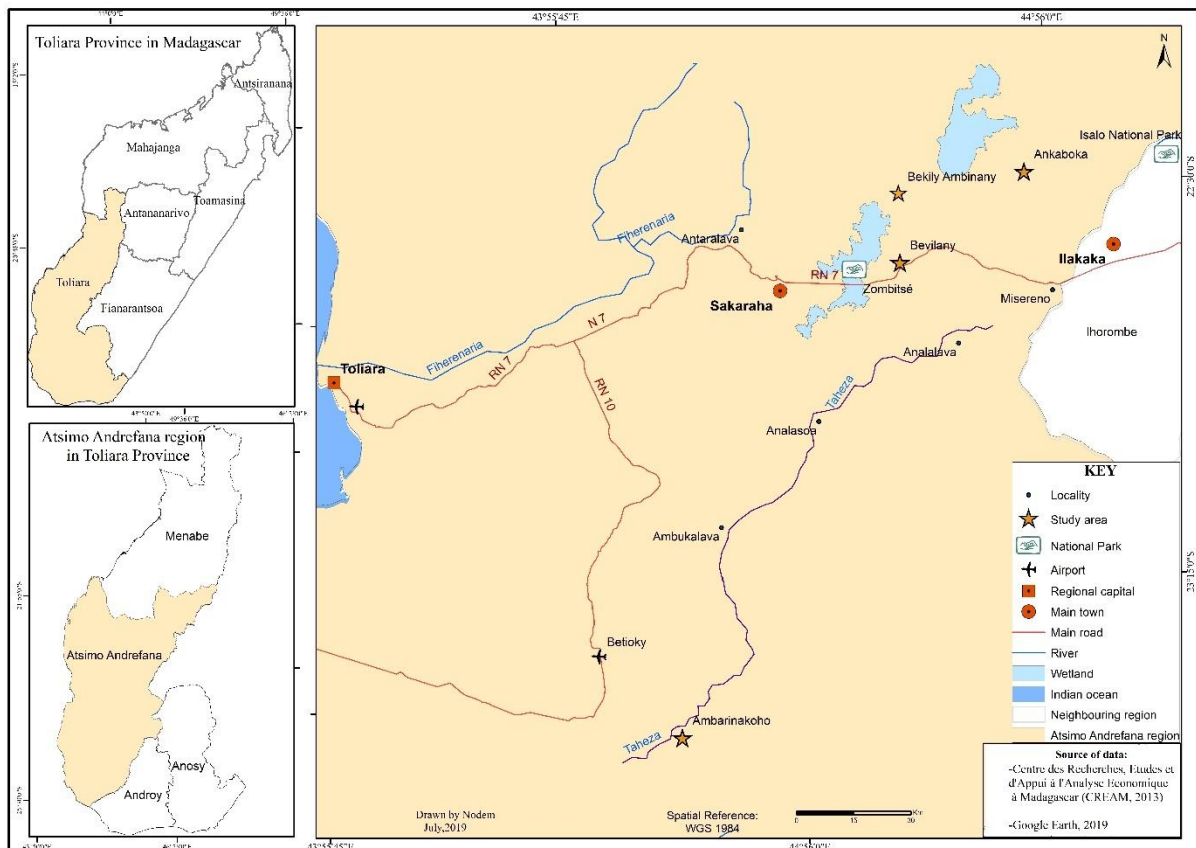
I chose mine sites which were within half a day’s travel by four-wheel drive from the town of Sakaraha or Ilakaka where I could stay in safety. The four sites were Bekily- Ambinany, Ambarinakoko, Ankaboka, and Bevilany (see Figure 5). The criteria used for the selection of sites were: presence of active ongoing mining, women were working on site, and my research assistant was able to introduce me to gatekeepers, for example, the mayor, the fokontany (village) chief, the traditional owner, or the mine manager.

For the miners, participants were recruited from women working with their sieves by the river or in the village. I approached them as they worked, and I then used a snowball technique by asking them to recommend others I could speak with.

Traders are present in groups in the mining towns of Sakaraha and Ilakaka. I sent word to the group in Sakaraha and asked them to participate. In Ilakaka I approached the women trading stones on the streets and sought permission to interview them.

In Thailand I recruited participants from recommendations and introductions by women industry leaders in academe, business, and training. The Asian Institute of Gemmological Studies connected me with women traders working in the Jewelry Trade Center (JTC) in Bangkok, the heart of the gem district dedicated to gems and jewellery with over 200 gem and jewellery businesses.

Figure 5 Area of Study in Southwest Madagascar



Source: CREAM (2013), Google Earth. Map drawn by Nodem Rodrigue

2.4 Data Collection

After explaining my work (see Project Information Sheets in the Appendix) and emphasising that I wanted to hear women’s stories, I obtained permission from the women to record them (in the field this was done verbally and the response recorded) and to take photographs. Table 2 provides a summary of data collected.

Table 2 Summary of Research Data

	Madagascar		Thailand
Data collection method	Artisanal women sapphire miners	Women sapphire traders	Women in the Thai gem and jewellery industry
Life history	23 life histories (2014–2016)	8 life histories (2016)	4 life histories of women traders (shop owners in the JTC)
Focus group	57 women miners were interviewed in 4 focus groups in mining villages (2016)	Focus group of 8 women	Focus group of 30+ students in Bangkok and Chanthaburi
Key informant interview	15 key informant interviews (11 male, 4 female)	3 key informant interviews (1 male, 2 female)	23 key informant interviews (academic, business, government) (4 male, 19 female)
Observation	60 days in area	60 days in area	26 hours in Bangkok at the JTC 12 hours at universities in Bangkok and Chanthaburi
Research publication	Paper 1 (reproduced as Chapter 5 here) is based on 7 life histories from 2014 and interviews with key informants and observations	Paper 2 (reproduced as Chapter 6 here) is based on 8 life histories interviews, observations, and focus groups It was also informed by the focus groups of 57 women miners in 2016	Paper 3 (reproduced as Chapter 7 here) is based on the above research undertaken in 2 weeks in 2018

Source: Author

2.4.1 Conducting Life Course Interviews

Miners

In Madagascar, for the studies of women miners and traders, the approach to research was the life course interview. At the mines I first obtained permission from the site manger to visit. I then approached groups of women and asked them to help me. My research assistant and I sat with the women respondents in a quiet space and asked them to tell us about themselves—their

name, age, where they came from, what they did, and how they did it. Then life histories were elicited with open-ended questions and prompts about their early life and family, their work, and children (see Box 1). In line with Giele & Elder (1998), I asked about significant moments in their lives: why they had taken up mining and turning points (such as the discovery of a valuable stone, loss of family member, etc.). I asked them how external factors had influenced their decisions (such as gemstone rushes, drought, hunger, and climate change). In return for their time spent away from work, the Malagasy women were given a simple gemmologist's toolkit, a hat, or a basket. In total, 23 miners' life histories were recorded across 4 locations and 7 of these were analysed in the paper presented in Chapter 5.

Malagasy traders

A similar process was undertaken to record the eight traders' life histories. I made contact with the group in the mining town of Sakaraha and invited them to a quiet place in the town where the interviews and life histories were conducted. These were recorded and this data was the basis of the paper presented in Chapter 6.

Thai gemstone traders

After extended visits and observations at the JTC, life histories of four female-owned gem business owners in the JTC were recorded, along with questions about their business, their products, how they learned their skills, about design, leadership, the Thai industry, and opportunities for women. The life histories of three among these four owners, those who worked exclusively with coloured gemstones, were chosen and narrative accounts were created. This was shared with the traders to validate the story and check its accuracy; modifications were made where necessary.

Event history calendars were designed (Drasch & Matthes, 2013; Giele & Elder, 1998) and were trialled in the field but they tended to limit conversation and intimidate women in the field. The event history timeline in Box 1 was used in the interview to prompt the interviewer to ask about important life events but no forms or papers were presented to the women and the best stories were told in informal conversation.

Box 1 Examples of Questions and Prompts for Eliciting Women's Life Histories

Women's work life

What does the work life course of a woman in gemstone mining/trading look like? What motivated you to take up ASM? How have you learnt your skills? What have been the turning points in your work life course? What has helped and hindered them in the work in the sapphire value chain?

Women's life story

What is your story? Talk about significant moments in your life.

Birth_____Early life school _____parents_____teenage years _____work
_____marriage _____children

Have you ever found any significant stones? What type, size, and colour? When? Where? What difference did that make to your life?

Prompts

Where did you come from? What did your parents/family do? How long have you worked here? Why did you start work here? Did *ker*a (starvation season) affect your decision? Why do you keep working here?

Source: Author

Interviews

All the interviews, both the life histories and the key informant interviews, were conducted using the open-ended semi-structured approach to interviewing preferred by feminist researchers (Devault & Gross, 2007). The overall research question driving this research concerned the opportunities and challenges the women faced and the factors which had empowered them in their work in the global gemstone supply chain. With this in mind, questions and prompts, such as those in Box 1, were used. Six sets of questions and prompts were devised (miners, traders in Madagascar, traders in Thailand, cutters and jewellers, Thai women business owners, and Thai women in leadership). In the design of the questions for Madagascar, I worked closely with my research assistant who advised on cultural issues and translated the questions into Malagasy. On many occasions I decided to follow Panos's (2014) advice about allowing the interviewee to control the interview. In this way I was often told

personally significant stories such as those about recent deaths in the family and the way sapphire money had paid for funerals.

In Thailand, life history questions (Giele & Elder, 1998) were used to open discussions with women working at universities, the GIT, as well as in large companies. This was followed by a series of specific questions for cutters and jewellers related to health and safety, knowledge transfer, and design, and for women business owners and leaders on knowledge transfer, and design and leadership in the Thai industry. I also consulted leading gemmologists across the life of the study.

2.4.2 Focus Groups

In Madagascar 5 focus groups (1 with the 8 women traders, and another 4 village focus groups, totalling 57 women) were conducted to complement the life histories. Women were also asked about the impacts of mining in the town and also the function of their associations. The dynamics of the group were observed and there was an opportunity to delve more into topics such as the clan-based nature of the group and its function in assisting each other with family expenses.

2.4.3 Interviews with Key Informants

Interviews with key informants (mayors, doctors, business people, government agents, national parks officers, GIT workers, and academics) were important for two reasons. First, they gave us vital information about the industry and the role of women, thus building the validity of the research (Kirk & Miller, 1986), and, second, they quickly became involved and committed to the research and this opened new contacts and ideas.

2.4.4 Observations

Extensive observations of women miners were made at the mine sites, by the river, on the walk down from the mining town to the river, and during interviews and focus groups. Subjects of observation included the interactions between women, their methods of working with each other, with male partners, with their children, the tools they used and their energy level and pain. Likewise, in the mining towns, observations were made of the women traders at work together or interacting with male middlemen, during meetings, and while engaged in trading activities in the town. These observations gave insights into the multi-layered, gendered dynamic of the trade both in the mines and the town and the way the women had created change

by working together as a group, helping each other out, or sitting together on the street corner. Such observations generally took place in public spaces, such as in the streets, trading areas, and in hotels where, for example, a room would be booked for an hour if there was a very large cash transaction for a stone.

Observations were made in Bangkok and Chanthaburi at the gem and gemmology faculty of two universities, at the GIT, in gem and jewellery companies, but especially at the JTC and the Chanthaburi gem market. At the universities, I observed the relationship between doctoral scholars and their supervisors and the passion and creativity of young undergraduates. In the markets and the JTC, I observed the way women used different sales and negotiation techniques, for example, combining work and social interaction.

I recorded aspects of the observations as notes (Hammersley & Atkinson, 2007) and, with permission, as photographs and audio and video recordings. These were shared and interpreted together with my research assistant.

2.4.5 Photos

The ASM mine site and trading towns are fast-moving, intense spaces with hundreds of people desperately seeking a stone that will change their lives. It is easy to overlook women and children who may occupy the margins of the sites and photos were most helpful in capturing the scene quickly. These photos were examined at the end of the day along with transcripts of the day's interviews. Photos made it less likely to "exclude or hide important dimensions that may be crucial to creating and or sustaining a situation of problem" (Ackerly & True, 2010, p. 30). An example can be seen in Figure 6; with the interpretation of my research assistant, I realised that this trader was being carefully watched and managed by the Malagasy wife of a Sri Lankan trader. This power dynamic, revealed in the photo, had not been obvious at the time of the interview.

Figure 6 **A Malagasy Sapphire Trader with the Wife of a Sri Lankan Trader**



Source: Author

Note: Artefacts used by all traders are the shoulder bag and the tray. The woman on the right is Malagasy but her dress is Sri Lankan, suggesting she is the wife of a Sri Lankan trader and in a position of control

The fieldwork was in many ways an overwhelming experience, especially in the mine sites and mine villages of Madagascar where I was usually thronged by a large number of people within about 10 minutes of commencing an interview, for example, male miners were curious to know why I was only talking to women and what they were missing out on. Photos proved an invaluable way of recording and capturing observations in this hectic context. Both a phone camera and a good quality DSLR were used. The phone was easy and adequate but the DSLR permitted a much better quality and depth of field. Analysis of these photos was sometimes more revealing than a whole hour of observation.

2.5 Analysis of Field Data

At the end of each day, we recorded our field observations; and translated and transcribed all the day's interviews. In this way I was able to check any discrepancy, to make clarifications, and to ask further questions in the field as soon as possible. This helped to establish a certain

level of reliability in the questions asked and in our data capture and recording (Kirk & Miller, 1986).

In Thailand, a similar process was followed except that all interviews were held in English or simultaneously translated and no research assistance was required. All interviews were recorded, transcribed, and printed. Transcripts of the life histories from the Thai traders were crafted into one-page narratives and I shared these with the traders and adjusted them as necessary.

During the analysis phase and particularly during writing, I constantly re-examined and re-interrogated the printed transcripts. This was to check facts and refresh my understanding of who my interviewees were and how and why their action and experiences were significant in my understanding of women working in this industry. In all of this I was mentored by key individuals in Madagascar and Thailand who have supported my research and mentored me in my understanding of the transcripts.

2.5.1 Thematic Categories

The data was further examined using a thematic analysis approach (Flick, 2014; Silverman, 2011) based on work life course analysis (Giele & Elder, 1998) and the challenges and opportunities faced by the women.

Work life course analysis

Thematic categories for understanding the work life history were:

- location in time, place, and climate (cultural background, the climate category was inductively derived from the first set of life histories),
- linked lives, for example, family (social integration),
- human agency (individual goal orientation), and
- timing of lives and climate change (strategic adaptation).

The analysis also looked for examples of life transitions or turning points, trajectories, sequences, and life events (based on Giele & Elder, 1998).

Challenges, opportunities, and factors that empower women

In line with the primary research question, the transcripts were coded for examples of challenges and opportunities and factors that had empowered the women. Other thematic categories were inductively derived from the data as they emerged (for example, the theme of

climate change as a push factor in women's migration emerged after the first round of interviews in 2014). Also, thematic categories were deductively and iteratively determined based on insights from feminist, institutional, and entrepreneurial theory and literature.

2.6 Literature Review: How It Shaped and Informed the Research

The literature review provided key concepts for the conceptual framework for this research. For example, in my Confirmation of Candidature document, the category of 'sustainable livelihoods' was included as part of the conceptual framework. Subsequent reading of the literature about GVCs and production, and institutions and entrepreneurship, led me to move away from a livelihood perspective and to consider the work of the women as part of a much bigger supply chain and for women as nascent entrepreneurs. Incorporating this perspective has brought fresh insight and also the possibility to consider how these women could be integrated into more lucrative nodes further down the value chain.

The literature also shaped the refinement of the development of the research question and my writing, for example, providing a domain for problematising the issue of informality and providing examples of research writing to learn from. Another influence of the literature was on the interpretation of empirical findings, this was an iterative process over the five years of the research with thematic categories for analysis being enriched. An example is the framing of the women's association as proto-institutions (Lawrence, Suddaby, & Leca, 2009). Literature was sourced from The University of Queensland Library using Scopus with advice and suggestions from my advisory team.

2.6.1 Institutional Literature

Institutional literature was sourced from both monographs and journals, notably North (1990) and Scott (1995). Lawrence et al. (2009) and Suddaby (2013) were consulted for specific issues of institutional voids, work, and incongruence.

The use of institutional theory to interrogate complex contexts of poverty was particularly helpful. I drew on path-defining papers, which are defined as "an exemplar that plays a key role in defining the field" (Alvesson & Sandberg, 2013, p. 58). A path-defining paper in this area is Mair's work on building markets in Bangladesh and doing institutional work in and around institutional voids (Mair & Martí, 2009; Mair, Martí, & Ganly, 2007; Mair, Martí, & Ventresca, 2012).

To understand informality from an institutional perspective for example transitioning informal entrepreneurs to the formal sector, the work of Webb is useful notably a seminal paper in the

Academy of Management Review (Webb, Tihanyi, Ireland, & Sirmon, 2009) in the *Journal of Business Venturing*

2.6.2 Entrepreneurship Literature

To begin to understand entrepreneurship theory in the African context, Sutter et al.'s. (2019) review of 200 papers for the *Journal of Business Venturing* provided an excellent introduction. Although still a nascent field, papers published in African journals or about African contexts were valuable (for example, Hilson et al., 2018a; Pansera, 2013; Slade Shantz, Kistruck, & Zietsma, 2018). Two journals that were reviewed regularly for these papers were *Technological Forecasting and Social Change* and the *Africa Journal of Management*.

EE theory and practice were important themes for this work. Valuable overviews were provided by Audretsch (Audretsch & Keilbach, 2007; Audretsch, Mason, Miles, & O'Connor, 2018) and Spigel (Spigel, 2017; Spigel & Harrison, 2018). In particular, recent thinking by Gómez, Chawla, and Fransen (2020) has helped me to theorise the relationship between informality and entrepreneurship and consider a way forward with transnational ecosystems (Manning & Vavilov, 2019).

2.6.3 Global Value Chains and Global Production Networks

My work benefited from the established scholarship of Gereffi and Barrientos. A recent overview of the theory and practice of GVCs is provided by Gereffi (2018) in his edited collection. The work of Barrientos (2019) on gendered value chains across the globe is synthesised in her recent edited volume.

A path-defining paper, and a first application of this theory to ASM, is provided by McQuilken & Hilson (2018) in 'Mapping small-scale mineral production networks: the case of alluvial diamonds in Ghana' and I referred extensively to this work.

2.6.4 ASM Literature

In reviewing the ASM literature, the wide ranging works of Hilson (for example, Hilson, 2012) and Spiegel (2009, 2012a, 2012b) provided a starting point. To better understand the role of women in ASM, a review by Jenkins (2014) and the works of Hinton (Hinton et al., 2003a, 2016) and Lahiri-Dutt (2003, 2011, 2015) were essential. Most recently, Buss et al. (2017) has stretched thinking in the domain using a feminist perspective to investigate complex scenarios in the Great Lakes Region (GLR). For the ASM of gemstone research, Cartier (2009) and Roy Chowdhury & Lahiri-Dutt (2016) are of particular value.

2.6.5 Gender

In both framing the study and its methodology, and understanding gender as an institution, I consulted the work of Ackerly and True (2010), Kabeer (2012), and Mills (1999, 2003, 2017) along with the work of many other feminist scholars such as Hesse-Biber's *Handbook of feminist research* (2007).

2.6.6 Country Contexts

Madagascar

I spent several days at the library of the Université de Toliara (in the capital of the region where the study took place) reading theses written by postgraduate students about the region and especially works on gender studies such as those by Ataovifatehitroatsy (2000) and Hazradjy Ahamad Broro (2012).

Randrianja and Ellis (2009) provided a detailed history of Madagascar in English; other valuable authors include Ricaldi-Coquelin (2010) for her study of exclusion in contemporary Madagascar. Malagasy feminist scholar and journalist, Rabenoro (2004, 2005, 2012, 2016), provided insight on women and Malagasy society and mentored me throughout the five years of the research. French geographer Canavesio, produced doctoral work on the sapphire rushes and subsequent publications (Canavesio, 2010, 2011, 2013, 2014, 2015). He is one of the only scholars working in this region and assisted me at a number of points during the fieldwork. Anthropological work on the sapphire rushes in the north of Madagascar by Walsh (2002, 2003, 2004, 2006, 2012, 2015) gives vivid, albeit rather male-centric, perspectives on the rush phenomena.

Thailand

The work of Mary Beth Mills (1999, 2017) provided a feminist perspective of women's work and migration in Thailand. The history of the Thai sapphire industry was researched through primary and secondary sources, particularly the comprehensive studies by Roy Chowdhury and Abid (2018), Hughes (1997, 2013, 2017), and Shor (2013).

2.6.7 Document Review

Extensive documentation was reviewed about Madagascar in both French and English. Primary sources included documents from the Ministry of Mines and Petroleum and World Bank reports of the country. In Thailand, documentation on the gem industry was collected from government websites, such as the Thailand Board of Investment's review documents, and annual reviews and forecasts of the Thai coloured stone industry published by the GIT. I was also provided with documents at meetings at the GIT office and sourced material from the GIT library in Bangkok.

2.6.8 Industry Literature

All issues of the main trade journals for coloured gemstones, *InColor*, and the peak industry body, the Gemological Institute of America's (GIA) quarterly journal, *Gems & Gemology*, were reviewed for work about sapphires. Reports on the gemstone industry by the Natural Resource Governance Institute (Shortell & Irwin, 2017) and the Centre for Research on Multinational Corporations in the Netherlands (Cross, van der Wal, & de Haan, 2010) were consulted.

I made extensive use of World Bank and IMF documents, for example, in relation to Madagascar (2011, 2014a), Thailand (IMF, 2020) and in relation to the legal rights and economic opportunities of women in Africa (Hallward-Driemeier & Hassan, 2013).

2.7 Reflexive Work and Positionality

I was aware that as a white woman in the field, my position did not go unnoticed and was likely to be a confounding factor in my work. To control for this, I consciously adopted a multi-voicing practice (Alvesson et al., 2008), working closely with, and listening carefully to, my research assistant and interpreter, T. Her role in helping me to negotiate the boundaries of research in Madagascar cannot be underestimated. The role of research assistants and interpreters is a surprisingly underexplored area given their crucial role in so much field research in remote locations. Several feminist publications have noted that their work is more significant than most researchers admit. Power inequality, invisibility, and silencing are just some of the issues raised (Jenkins, 2010, 2018; Mandel, 2003; Turner, 2010). T was a gatekeeper for the research in southwest Madagascar. She had a master's degree in geography from the local university and had done a six-month placement in one of the mining villages. She spoke the local dialect and shared excellent relationships with many of the key informants. She had worked a lot with women in remote regions and guided my manner of engagement.

Each evening when I transcribed the day's recordings, there was time for a moment of reflexivity where I had an opportunity to "turn back upon and take account of" the day's research (Clegg & Hardy, in Alvesson et al., 2008, p. 480). T carefully explained local customs and how to behave, and corrected me when needed. The relationship has been fairly reciprocal, she helped me a great deal but she also learned from me about the opportunity to study abroad and completed further study in Australia.

2.8 Research Pathway

2.8.1 Ethical Approval

Ethical approval to conduct research among women gemstone miners and traders in Madagascar was gained from the Sustainable Minerals Institute research committee in January, 2014. Project information and informed consent forms (alternative form) were written in English and French, one of the official languages of Madagascar (see Appendix 1). After the mid-candidature milestone meeting in November 2016, it was agreed that for the study described in Chapter 7, I needed to extend my research to Thailand to interview women in the final stages of the coloured gemstone value chain for example business owners, cutters and polishers, designers, jewellers, gemmologists. Very little research had attempted to follow Malagasy gemstones from their point of extraction, trade, and to the final product set in jewellery. The inclusion of Thailand into my research was approved by The University of Queensland ethics committee in late 2017. My project information and informed consent forms (alternative form) were translated into Thai (see Appendix 1).

2.8.2 Travel to Madagascar

The research has coincided with, and has been enabled by, my work in Madagascar. The research also opened up work opportunities with both the German government and the Tiffany & Co. Foundation. A total of 14 missions over the 5 years of the research have given me a deep appreciation and grounding in the country and its extractive industry.

2.8.3 Key Dates for This Research

The key dates for this research can be found in Table 3.

Table 3 Key Dates of Research

January 2014	The University of Queensland ethics approval
February 2014	Confirmation seminar
March 2014	Field trip # 1 to sapphire mines in southwest Madagascar
December 2015 Output 1	Publication presented at the ANU conference ‘Between the plough and the pick’ and included in the ANU edited volume Lawson (2018a).
December 2015	Field trip # 2 to sapphire towns and women traders in southwest Madagascar; further interviews at mines
March 2016 Output 2	Extensive fieldwork on women in mining for German Development Agency (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH or GIZ), <i>Report women and mining in Atsimo Andrefana</i>
November 2016	Mid-candidature presentation and meeting
May 2017 Output 3	Scripted and made film <i>Women in the Madagascar jewellery supply chain</i>
July 2017 Output 4	International conference on sustainable development at Columbia University, New York; presentation: ‘Reflections on the life stories of gemstone professionals in Madagascar’; poster session: ‘Promoting women’s voices in rural contexts: Reflections from the literature and southwest Madagascar’
November 2017	Fieldwork on women in mining for GIZ in Madagascar
	Field photos exhibited at the United Nations Women, Nairobi
January 2018	Field trip # 3 to Bangkok and Chanthaburi
2018 Output 5	‘Sapphire secret’ in <i>The Conversation</i> (Lawson, 2018b)
2018	Work featured in The University of Queensland research impacts page: http://uq.edu.au/research/impact/stories/precious-work/
2018 Output 6	Published blogs on https://www.sustainablegemstones.org/blog
May 2018	Training trip: Women in ASM southwest Madagascar funded by Tiffany & Co. Foundation
July 2019 Outputs 7 and 8	Papers two and three (reproduced as Chapters 6 and 7 here) published in the <i>Journal of the Extractive Industries and Society</i>
August 2019 Output 9	Field photos of women in mining exhibited at the State Department, Washington
October 2019	Thesis review

Source: Author

2.9 Limitations of Methodology

The decision to focus almost entirely on qualitative data and to draw heavily on the literature for my theoretical understanding and development of theory was justifiable given the early stage of research in this field. However, the collection of more quantitative data would have been very valuable, for example, the number of women on site, family groups, women working alone or with other women, the number of children and young girls. This data is not available from local records, for example, mayors do not disaggregate by gender and sending out enumerators into the field would have raised suspicions about my motives and perhaps lost the confidence and trust that afforded me the life histories.

The estimates made of the increase in the price of the stones as they pass along the value chain were based on the expert opinion of gemmologists and gem traders interviewed. It would be good to validate these values using more precise quantitative data from a wider range of sources. However, reliable data sources are not easy to find and most would assume I was asking such questions because I was on a buying mission. This again could mean losing the trust to uncover further aspects of women's personal and economic empowerment.

Finally, this research was carried out over five years while I was working full time at the Sustainable Minerals Institute, travelling often to Africa but also working with many young African leaders including many Malagasy professionals through the Australia Awards Africa programme. With these experiences, including 14 missions to Madagascar, I had the great advantage of immersing myself in the culture of my chosen topic. However, this also meant that my deep reading of the literature and time for reflection came mostly towards the end of the five-year period and resulted in the substantial discussion section in Chapter 8. This reflection and reading of theory could have enriched and informed my earlier fieldwork and writing. The three publications I include here were written over a three year period and they show my developing confidence as a researcher in this field. This is reflected in the evolving style of my writing and the sharpening focus brought by my understanding of theory. As a record of my development and to respect the genre of a thesis with publication, I have retained the integrity of these publications and kept them much as they are in print. In my discussion chapter I conduct a more synthetic level of analysis of the data, drawing together my findings theoretically driven thematic headings

Chapter Summary

In this chapter I have outlined the conceptual framework and feminist informed methodology used across the five years of the research, including a review of theoretical and applied literature and specialist literature on gemstones and Madagascar. The way sites and subjects were selected and the qualitative research method has been described. I have commented on my use of reflexive work and multi-voicing practices along with some of the work's limitations.

Chapter 3

Literature Review: Institutional Theory, Entrepreneurship, and Entrepreneurial Ecosystems

Chapter Overview

The gemstone value chain presents challenges and opportunities for those engaged at every node, women in particular have found a fragile lifeline in the industry which must remain at the forefront of thinking about reform in the industry. Despite the commercial value and significance of the gemstone value chain, there has been little consideration of the way it works from the perspective of institutional or entrepreneurship theory. Yet, these perspectives can provide insights into some of the complex challenges and opportunities faced by the industry and women in particular. EEs are an important and popular approach for considering some these challenges. Keeping in mind the principal and secondary research questions guiding this research, in this chapter I consider and critically analyse the concept of EEs within the context of a review selected literature on institutional theory concentrating on informality.

I then consider entrepreneurial theory in relation to poverty and EEs. These two perspectives of institutional and entrepreneurial theory provide a set of complementary lenses through which to examine the work lives of women working across the gemstone supply chain. The use of this literature also demonstrates my reflexive research position which seeks to juxtapose different perspectives to provide new insights. It is the “accumulation of these perspectives that amounts to reflexivity: the use of different perspectives is enlightening in that it helps to complement otherwise ‘incomplete’ research” (Alvesson et al., 2008, p. 483). These perspectives will also frame the review of applied literature on global supply chains and women in ASM presented in Chapter 4.

Research on business and entrepreneurship in Africa is limited and scattered across a range of disciplines (Hilson et al., 2018a). However, scholars are beginning to take an interest in this emerging market of new growth opportunities which will have an extraordinary potential workforce of nearly 450 million people by 2035 (George, Corbishley, Khayesi, Haas, & Tihanyi, 2016). There is also the imperative to investigate entrepreneurship as a solution to extreme poverty which is especially prevalent in sub-Saharan Africa (Sutter et al., 2019). In their extensive review of 154 research articles on African business management, George et al. (2016) found three overarching challenges for entrepreneurship in Africa which apply also to challenges in ASM. The first is navigating institutional voids and the need to work around weak institutional infrastructure to find value-creation opportunities (Ngobo & Fouda, 2012;

Ofori-Dankwa & Julian, 2013), the second is building capability in managers (Mano, Iddrisu, Yoshino, & Sonobe, 2012) and employees (Urban & Streak, 2013) and the third is enabling opportunity by implementing new market entry strategies. All these challenges are pertinent to my research.

In this first part of the literature review I will provide some background to institutional theory illustrating the concept with an example of governance and its application to research in the gemstone supply chain presented here. Gender is discussed as a social institution and some key institutional concepts, institutional work, institutional voids, and proto-institutions, are defined. I will then use these concepts to interrogate the crucial and challenging area of informality in the industry.

3.1 Institutions and Informality

3.1.1 Institutional Theory

Institutional theory has developed to explain the social and cultural aspects of economic activity in organisations and society. It has been catalysed by the realisation that the behaviour of organisations cannot simply be understood by economic rationality (Suddaby, 2013) but must also consider wider ‘institutional’ factors. According to North (1991), institutions are “humanly devised constraints [including both informal norms and formal rules] that structure political, economic and social interactions” (p. 97). Institutions can be formal, as in rules and laws, and the “rules of the game” (North, 1991, p. 98), or informal as in customs, traditions, and codes of conduct. Scott (1995) argues that institutions consist of three pillars. The first is regulative; these are legally binding rules, including written rules, but also the code of conduct that underlies them. The second is normative, emphasizing norms and values and ‘how the game should be played’. The third pillar is cognitive and stresses the importance of our social identities, what make sense to us and our internal scripts, those “guidelines for sense making and choosing meaningful actions” (p. 42).

A pertinent example for this study is the institution of ‘good governance’ defined as “the traditions and institutions by which authority in a country is exercised” (Kauffmann, 2006, in Ngobo & Fouda, 2012, p. 43). This includes processes related to formal government such as free and fair electoral representation but it also includes the quality of business institutions, for example, the transparency of governance, regulation, and levels of corruption in business. While regulative institutions exist to control corruption, normative and cultural institutions may differ about what behaviour is acceptable ‘to grease the wheels’ (Dutta & Sobel, 2016) when institutional environments are weak. This tension can be seen very clearly in the slippery area

of what constitutes “legitimate entrepreneurship in the informal sector” (Webb et al., 2009, p. 492) and illegal activity. This is a significant concern in the gemstone value chain which moves a small and valuable commodity through a significant number of nodes in the informal economy.

3.1.2 Gender as a Social Institution

If North (1991) defined institutions as the rules of the game, Martí and Mair (2009) argue that it is institutions that also dictate *who* is allowed to play (North, 1991). In this sense, gender itself can be considered as a normative or social institution (Martin, 2004; Rosenberg, 2009) or institutions can be seen as bearers of gender (Whitehead, in Kabeer, 2012).

As I consider the economically disadvantaged position of most women at every node of the gemstone supply chain, understanding gender as a social institution and how it intersects with other institutions has vital explanatory power. Women can experience the double impact of family and cultural institutions which confine them to reproductive tasks, and the brunt of formal institutions which also impedes their progress.

Women’s lower levels of labour force participation compared to men and their concentration in the poorest segments of highly gender segmented labour markets reflect the intersection of the gender-specific constraints. These reflect the rules, norms, roles, and responsibilities of the intrinsically gendered relations of family and kinship with the ‘imposed’ constraints embodied in the rules and norms of the purportedly gender neutral institutions of states, markets, civil society, as well as the attitudes and behaviour of different institutional actors (Kabeer, 2012, p. 50).

Institutions may have clear discrimination against women enshrined in law, either customary or de jure (Hallward-Driemeier & Hassan, 2013), but women’s economic development is also constrained by deeply held local customs and attitudes to their role and participation. In western countries women’s participation in the economy is also constrained, albeit by a different set or degree of normative and cultural institutions (Delmar & Davidsson, 2000; Rosenberg, 2009). In a large study of nascent entrepreneurs in Scandinavia (Delmar & Davidsson, 2000) gender was found to be the most significant discriminating factor with the probability of men starting a business being significantly higher than the probability of female-headed business start-ups. It appears that discriminatory gendered institutions may also extend to research design as Delmaar and Davidsson (2000) conclude:

[W]hen one studies mixed samples of business founders, the results will mainly reflect truths about male entrepreneurship. It appears no one knows much about the processes that lead women to opt for self-employment. (p. 20)

In Madagascar and Thailand (with some exceptions), women's participation in entrepreneurial gemstone business activity is similarly constrained and not well understood.

In the following section I will consider institutions and the informal sector. I begin by defining some of the key institutional concepts that will be used to discuss, in more depth, institutional aspects of informality.

3.1.3 *Institutional Work: Discursive, Relational, and Material*

Institutional work has been defined as that “purposive action of individuals and organisations aimed at creating, maintaining and disrupting institutions” (Lawrence et al., 2009, p. 10). It shifts the focus away from how institutions affect actions to the way in which actions (institutional work) impact organisations and institutions. More recently, Lawrence has challenged us to explore institutional work in more depth and:

[D]evelop a framework for analysing the purposeful, reflexive efforts of individuals, collective actors, and networks of actors [that] shape the institutional arrangements within which they live, and which influence their experiences, opportunities, and actions. (Lawrence & Phillips, 2019, p. 190)

This analytical framework has discursive (linguistic), relational (social), and material (artefactual) dimensions. For example, the institutional work which changed attitudes towards sexual assault and harassment in 2018 used all three dimensions: discursive (the hashtag #metoo), relational (12 million posts used the hashtag during the first 24 hours), and material (wearing black gowns to the Golden Globe award ceremonies) (Wiseman, 2018).

3.1.4 *Types of Institutional Work: Creating, Maintaining, and Disrupting*

Three types of institutional work have been identified: creating institutions, maintaining institutions, and disrupting institutions (Lawrence et al., 2009). “Institutional entrepreneurs” are those actors who “[leverage] resources to *create* new institutions or transform existing ones” (Maguire et al., 2004, in Lawrence & Phillips, 2019, p. 208). Several institutional scholars argue that in situations of extreme poverty and disadvantage, institutional work is not just about powerful actors lobbying and taking control; rather institutional work “goes beyond new ways of doing things to new ways of seeing things” (Martí & Mair, 2009, p. 93). This new kind of institutional work is characterised by small steps and engaging in experimental projects,

working behind the scenes to challenge myths and cultural traditions and building provisional institutions (Martí & Mair, 2009). An example is the *disruptive* institutional work carried out by sacked Turkish factory workers who sewed tiny messages “I made your clothes but I didn’t get paid” into Zara merchandise (Wiseman, 2018).

3.1.5 Institutional Voids

The greatest challenge to business in Africa stems from the persistence of institutional voids, understood as the absence of market-supporting institutions, specialised intermediaries, contract-enforcing mechanisms, and efficient transportation and communication networks (Khanna & Palepu, 1997; George et al., 2016).

An institutional void is a gap, weakness, ambiguity, or lack in an institution that undermines the functioning of the market, for example, restricting access to poor or marginalised groups (Khanna & Palepu, 1997). These voids can be maintained by legal institutions around property ownership and by norms about who can do business. For example, gendered institutions restrict women’s economic activity and access to land and markets in many parts of the world. It is significantly one of the most important challenges facing African business (George et al., 2016).

3.1.6 Proto-institutions

Proto-institutions are early forms of institutions or “institutions in the making” (Lawrence, Hardy, & Phillips, 2002) that can be found where there are institutional voids, that is, in situations where formal institutions are weak or absent.

[Such] new practices, technologies, and rules have the *potential* to become institutions in their own right, if social processes develop that entrench them, and they are diffused throughout an institutional field. (Lawrence et al., 2002, p. 283)

Collaboration is crucial in the creation of proto-institutions and intermediaries and partners such as NGOs can play a vital role in linking the old with the new and creating effective and lasting institutions (Lawrence et al., 2002). Proto-institutions can be a stepping stone between informality and formality. In the context of the gemstone value chain with its multiple informal nodes, proto-institutions and intermediaries can play a vital role in creating legitimacy and linkages that open up pathways to formal markets for women working in the informal sector. In the next section I discuss some of the reasons why informality persists in many sectors and is the dominant form of business in Africa. Conditions which bring about and maintain this are

discussed such as institutional voids and incongruence. I will discuss some of the consequences of informality and some examples of the way the formal and informal sector can work together.

3.2 Institutions and the Informal Economy

“You say illegal, I say legitimate entrepreneurship in the informal sector” (Webb et al., 2009, p. 492).

This interplay between what the law prescribes and what informal systems see as acceptable, is the fundamental dilemma facing many regulators of informal economic activity, not least in the ASM sector. As Uzo and Mair (2014) comment in their study of informality in Nigeria:

Organisations in institutionally complex settings, such as developing countries, are often born at the interstices of formal and informal institutions, and their organisational life is critically shaped by the interplay of what the law prescribes as legal and what informal systems of beliefs foresee as socially acceptable. (p. 56)

However, above all, it needs to be clearly stated that the informal economy is a vibrant and growing part of life in Africa, in most cases “helping a large number of people become a little less poor” (Berner, Gomez, & Knorringa, 2012, p. 382). Representing up to 90 per cent of Africa’s business (Galdino, Kiggundu, Jones, & Ro, 2018), the informal economy also makes a significant contribution to economies across Africa that persist through boom and bust (Gómez et al., 2020). Scholars are recognising the importance of the informal economy, and there is a wide range of studies dealing with institutions and informality in emerging economies (De Castro, Khavul, & Bruton, 2014; Galdino et al., 2018; Gómez et al., 2020; Harriss-White, 2018; Phillips, 2011; Ram, Edwards, Jones, & Villares-Varela, 2017; Urbano, Aparicio, & Audretsch, 2019; Uzo & Mair, 2014).

I consider informal activities to be economic activities that occur outside of formal institutional boundaries but within the boundaries of informal institutions. Informality should be viewed “as distinct from wholly criminal activities that are illegal and illegitimate” (Webb, Ireland, & Ketchen Jr., 2014, p. 6). It is the positioning of entrepreneurial individuals at the intersection of the boundaries between formal and informal industry and who find a way to work around these boundaries, that is interesting from a theoretical perspective.

3.2.1 Institutional Context and Informality

Institutional theory is particularly helpful in analysing the boundaries and contexts that shape the creation of informal business in Africa and the individual entrepreneurs who work in this

space. For example, the characteristics of the institutional context, such as lack of resources, highly centralised government, and inconsistent enforcement, impact on the growth of the informal sector and decisions about whether entrepreneurs exploit opportunities through formal or informal means (Mathias, Lux, Crook, Autry, & Zaretzki, 2015). Weak enforcement of formal institutions may actually facilitate some entrepreneurial processes in an informal economy (Webb et al., 2009). The informal sector is often created and maintained by institutional voids, for example, differences in legitimacy can provide opportunities to be exploited by resourceful entrepreneurs (Webb, Bruton, Tihanyi, & Ireland, 2013).

The absence of functioning reliable institutions to regulate the sector provides opportunities for the informal sector to emerge and flourish. Take the example of licensing small-scale operations. Formal institutions in Africa lack the agility to respond quickly to “the complexities of often diverse, pluralistic, and demanding societies” (Webb et al., 2014, p. 7). Licensing bodies and regulators may be too preoccupied by large companies to find ways to make it easy for small firms to formalise, and the transaction costs can be too high for small outfits. To this are added difficulties posed by the institutional context such as lack of basic infrastructure, Internet, and the concentration of services in the capital far from where the informal operator is working (Kistruck, Webb, Sutter, & Ireland, 2011). This is certainly the case in small-scale mining and trading where almost impossible conditions are added to “ever-increasing fee systems [that] constituted a clear form of ‘rent-seeking’ from national government officials” (Spiegel, 2015, p. 551).

3.2.2 Institutional Incongruity

Incongruence occurs when there is a difference between where formal and informal institutions draw boundaries on what is socially acceptable in business. Webb et al.’s (2009) paper on informality and entrepreneurship argues that “institutional incongruence facilitates the entrepreneurial process in the informal economy” (p. 494). Typically informal institutions impose fewer restrictions on business (Webb et al., 2009).

Institutional incongruence in contexts where resources to inspect and enforce regulations are poor also leads to growth in the informal sector. This incongruence can be seen in the small-scale mining sector where regulations for the industry drawn up by foreign consultants in distant capital cities have little relevance to conditions on the ground. Such regulations can be ambiguous and are often deemed to be inconsistent and unfair. The “demarcation of legality becomes blurred” (Webb et al., 2014, p. 8) and regulations are often poorly or unevenly enforced with vested interests at play.

A pertinent example comes from the mining sector. One response from the government to unregulated mining has been to place a moratorium on all new mining until the situation can be ‘cleaned up’; a common observation from miners is that such bans have been unfairly imposed, with some new permits being issued to wealthy ‘friends’ while others, deprived of their income, are excluded. There are numerous examples of this in Madagascar since the freeze on all mining permits in 2009, and during the recent ‘crackdown’ on unregistered mining in Ghana (Hilson, 2017b). Such institutional incongruence may discourage workers from even attempting to respect formal norms and encourage growth of the informal and illegal sectors.

3.2.3 Some Consequences of Informality for Developing Countries

The informal economy by definition comprises economic actions that bypass the costs of, and are excluded from the protection of, laws and administrative rules covering “property relationships, commercial licensing, labour contracts, torts, financial credit, and social security systems” (Feige, 1990, p. 992, in Portes & Haller, 2010). This creates a number of challenges especially for developing economies.

The informal sector fails to contribute tax revenue and other rents that could be used to fund vital infrastructure and education. This is certainly often said of lost tax revenue in the informal mining of precious metals and stones. The second issue is one of legality, for example, informal businesses carry significant legal risk, they are not regulated or covered by insurance for either their business or their workers. Workers are particularly vulnerable as they have no cover in terms of accident insurance or other entitlements, nor are their wages regulated. Lack of regulation also means there are no controls of health and safety, environmental impacts, or child labour. Production can be tainted and criminal practice can creep in, the absence of state regulation in informal exchanges “opens the door for violations of normative expectations and widespread fraud” (Portes & Haller 2010, p. 406). Many working in this sector do so because there are no jobs in the formal sector and the informal sector provides some level of security. Despite the poor conditions, there is thus little motivation to comply or enforce compliance.

The following section provides some examples of the way in which proto-institutions and support from outside partners and intermediaries can enable the formal and informal sectors to work together. Finally, it will be argued that there is a strong case for seeing informality and formality as a continuum rather than as a dichotomous issue.

3.2.4 Enabling the Informal and Formal Sector to Work Together

In the face of these difficulties, there are some examples of institutional work within the sector that have created proto-institutions to enable the informal sector both to work with the formal sector and to regulate within the sector itself. For example, in Tanzania a range of institutional voids had made it impossible for Tanzanian women to sell their valuable and sought-after coloured gemstones globally. By mobilising institutional support from a global alliance with NGOs and the private sector, proto-institution, Moyo Gems, was created and women miners can sell directly to jewellers in the UK and the USA (PACTa, 2019). It is on the way to becoming a formalised business but will likely continue to incorporate informal actors in its ecosystem.

An unconventional initiative to connect modern finance with informal financial systems is the relationship of Barclays Bank with the Ghana ‘susu collectors’. These women were among the oldest informal financial groups in Africa and their role was to collect savings daily from informal traders. They had no access to banks until Barclays Bank created special bank accounts and trained them, and they in turn opened access to a new market for Barclays (Osei, 2007). Barclays Bank and the ‘susu collectors’ are engaged in the disruption of existing restrictive banking institutions and doing the institutional work (Lawrence & Phillips, 2019) of creating a new proto-institution, micro-banking, that connects two financiers, one formal and one informal, in the vital area of finance.

Proto-institutions also enable the informal sector to regulate itself. An example is the many groups of informal wastepickers who have organised themselves into proto-institutions to claim their rights to their profession and proclaim the value of their activity (Ruiz-Restrepo & Barnes, 2010).

3.2.5 Creative Solutions

Having reviewed some of the institutional issues that affect the informal economy, it is proposed that informality, particularly in emerging economies, is best viewed as a “multi-dimensional continuum” (De Castro et al., 2014, p. 75) where skilled entrepreneurs navigate both the norms of the informal and the enabling and constraining elements of the formal environments according to their need. Particularly in long complex supply chains such as those in the jewellery industry, the informal and the formal intersect, large formal firms must use supply chains where informal practice is inevitable and hard to detect. These nodes of informality pose the greatest challenges for regulation, due diligence, and sustainable development. They also provide an opportunity for poor actors to contribute and profit from

the broader economy, with formalisation, such actors can find themselves excluded. There is therefore a case for allowing some informality for women working at the first stages of the gemstone value chain. How such informality can be successfully integrated within the supply chain is discussed in the next section on entrepreneurship.

Considering the literature on the informal sector, there is a clear divide between those who are working in this sector to simply survive and those who are growth-oriented and looking towards upward mobility. These two groups of entrepreneurs are qualitatively different and use very different logics (Berner et al., 2012). This distinction is not always made in the management literature and is equally important in the literature of entrepreneurship.

3.3 Entrepreneurship and Entrepreneurial Ecosystems

In this review, I now consider some aspects of the entrepreneurship literature in relation to poverty alleviation, gender, and EEs. In doing so, I am mindful that many women in the gemstone chain are at the survival end of the value chain and, at this point in time, the number of people in ASM who can even be considered nascent entrepreneurs is very small (Hilson, 2017a; Hilson et al., 2018a). This consideration remains front of mind in defining entrepreneurship and in selecting key themes to discuss from the vast entrepreneurship literature. I begin by considering definitions of entrepreneurship and their application in the African context, in particular for women. I then look at literature which has investigated entrepreneurship as a solution to poverty with a focus on three enablers of successful entrepreneurship in the context of poverty: partnerships and intermediaries, training, and access to finance. In the final section I will critically review the literature on EEs as a possible model which can incorporate informality and transnational support such as intermediaries and NGOs.

3.3.1 Definitions of Entrepreneurship

Entrepreneurship can be seen as a process that starts with the “discovery of opportunities by alert individuals who consistently scan their environment” (Kuada, 2015, p. 149). It is a process of discovery but also a way of seeing the world and responding to it (Audretsch & Keilbach, 2007). Another relevant distinction is between necessity/survival entrepreneurs, those who start a new venture because there is no alternative, and opportunity entrepreneurship, which is linked to the identification of a good business opportunity and not survival per se (Fuentelsaz, González, Maícas, & Montero, 2015). It is the discovery and creation of opportunities that are more likely to lead to sustainable economic opportunity (Alvarez & Barney, 2014).

For this research, a definition of entrepreneurship in the context of supply chains and markets is important. Eckhardt and Shane's (2003) definition of process innovation is also useful for defining entrepreneurship in the context of supply chains as "situations in which new goods, services, raw materials, markets and organising methods can be introduced through the formation of new relationships along the supply chain" (p. 336). That is, finding frameworks for new means, ends, or means and ends. Other key concerns are the agility and the flexibility of the entrepreneurs in the supply chain (Fayezi, Zutshi, & O'Loughlin, 2017). Both these qualities relate to the capacity to effectively integrate supply chain relationships in the face of uncertain conditions. Agility refers to a "strategic ability to sense and respond to internal and external uncertainty" whereas flexibility is "an operational ability that assists an organisation to change efficiently internally and across their key partners" (Fayezi et al., 2017, p. 380). An example is the Thai gemstone supply chain which is grappling with finding both new means (sources of gemstones, new designs, and marketing strategies) and ends (markets for their products). They require both agility and flexibility to respond to the threat of mass-produced and synthetic gemstones coming from China.

The different logics of survival and growth entrepreneurs

There is some confusion and an absence of clear frameworks around the terminology used for small-scale informal entrepreneurs. For example, the term micro-entrepreneur it is not simply a question of size but a question of business logic as micro-entrepreneurs can be either survival or growth entrepreneurs. Nor is formality always a distinguishing characteristic as both logics will be found in formal and informal ventures. The distinction in the logics used by survival and growth entrepreneurs is an important one if funds for projects and development are to be appropriately targeted. They are different groups rather than different stages in the trajectory of firms (Berner et al., 2012). These characteristics are summarised in Table 4.

The different logics used by survival and growth entrepreneurs are discussed in a review paper by Berner et al. (2012). They draw together literature, which has sought to identify categorical differences in small-scale entrepreneurs, and they consolidate a typology for understanding the different logics of survival and growth entrepreneurs, particularly those working in the informal sector. They argue that there is a fundamental and qualitative difference between survival and growth entrepreneurs in relation to a range of key variables. The typology proposed is particularly helpful in understanding women's work in the ASM value chain.

Table 4 Characteristics of Survival and Growth-oriented Enterprises

Survival (ist)	Growth (oriented)
Terms used: Microenterprise, street economy, necessity driven own account, sub-subsistence	Terms used: Microenterprise; small-scale family enterprise. Opportunity driven, micro-accumulation
Ease of entry, low capital requirements, skills	N/A
Female majority	Male majority
Maximising security: prefer to expand to the limits of their own labour and management capability	Willingness to take risks
Part of diversification strategy	Specialist activity
Embedded in networks of family and kin	Embedded in business networks
Obligation to share income generated	Ability to accumulate
Little growth but may lift the next generation out of poverty through support for education	N/A
Operate in ‘destructive uncertainty’ overcrowded market niches negligent predatory government officials	Also operate in overcrowded market niches but less vulnerable than survivalists
Beholden personal patronage relationship have to be maintained	N/A
Benefit disproportionately to improvements in basic services	N/A
Both risk their own assets, allocate factors of production, apply their knowledge to their business, and make decision about stocking, changes in their offer, and contracting credit	

Source: Adapted from Berner et al. (2012).

The resources required to produce economic goods are land (including all natural resources), labour (including all human work and skill), capital (including all money, assets, machinery, raw materials), and entrepreneurial ability (including organisational and management skills, inventiveness, and the willingness to take risks). For each of these factors there is a price, that is, rent for land, wages for labour, interest for capital, and profit for the entrepreneur (Law, 2018).

3.3.2 Entrepreneurship for the African Context

In a context of poverty, as in many parts of Africa, the necessity/survival definition of entrepreneurship is appropriate as much economic activity is purely for survival. However, the necessity/opportunity distinction elaborated in Africa by Tellegen (1997), and now adopted by the Global Entrepreneurship Monitor (GEM) (Reynolds, Camp, Bygrave, Autio, & Hay, 2002) is not always so clear cut. Williams (2014) in his review of entrepreneurship in the informal sector concludes “informal entrepreneurship is not driven by either choice or necessity, but by both” (p. 8). However, “not all opportunities are equal” and many of the self-employment opportunities that are taken up by those in “abject poverty, do not lead to sustainable growth solutions” (Alvarez & Barney, 2014, p. 159). They are not scalable, they do not usually provide work for others, and they are easily imitated.

In contexts of poverty, discovery/creation opportunities are often inaccessible or impossible to exploit. An instructive example of South African entrepreneurial discovery and creation is the cockroach mechanic. Cockroaches are repurposed large American cars used as taxis in rural townships; an enterprising mechanic with deep knowledge of the sector set up a sustainable business repairing and certifying them. His human capital, notably his experience and his trade, were crucial in the exploitation of this opportunity; the abjectly poor do not have this, nor do they have the finance to access an opportunity (Alvarez & Barney, 2014). In most contexts in Africa, a critical issue is finding a market for the new idea. Co-creators and partners are vital in this.

3.3.3 Women Entrepreneurs in Africa

Looking across Africa at networks of traders, the majority of them women (Clark, 2010), it is clear that entrepreneurial spirit is not lacking. What is missing is an effective channel for these entrepreneurs (Beugré, 2017) and the business and EE to support them. Africans display among the highest entrepreneurial intent globally (Herrington & Kelly, 2012) but these cognitions maybe be more related to survival than opportunity exploitation. Without jobs and education, survival entrepreneurship is the only option for African youth and young women in particular (Ratten & Jones, 2018). GEM’s 2016/2017 report on women’s entrepreneurship, found that female entrepreneurship rates in sub-Saharan Africa are the highest in the world (Kelley, 2017). Most of these women are needs-based entrepreneurs and given that only 2 per cent had a high school education (Kelley, 2017), it seems likely that these women are at the survival end of necessity entrepreneurship. The 2012 GEM Africa Report states that African countries are less

well prepared than many other regions to capitalise on the motivations and energy of youth and women in particular (Herrington & Kelly, 2012). More recent GEM reports have not been conducted (Dvoulety & Orel, 2019), perhaps reflecting a level of institutional disengagement and lack of strategic planning for this pressing issue.

3.4 Entrepreneurship and Poverty

Scholars and practitioners increasingly argue that entrepreneurship could be a vital element in the alleviation of extreme poverty as can be seen in the 200 papers reviewed for the *Journal of Business Venturing* in ‘Entrepreneurship as a solution to extreme poverty: a review and future research directions’ (Sutter et al., 2019). Research interest is growing on topics like the impacts of microfinance (Banerjee & Jackson, 2016), the different strategies used by growth and survival entrepreneurs and interventions for the latter (Berner et al., 2012), the informal economy and entrepreneurship (Bruton, Ireland, & Ketchen, 2012), EEs and the informal economy (Gómez et al., 2020), business perspectives on how to promote sustainability for those in poverty (Khavul & Bruton, 2013), and business opportunities in and around institutional voids (Mair et al., 2007; Martí & Mair, 2009). Innovation at the bottom of the pyramid is another frequent theme (Calton, Werhane, Hartman, & Bevan, 2013; Hamann, Bitzer, Griffin-El, & Hall, 2015; Pansera, 2013). Among the most promising studies are those small number of studies which are published in African journals for the African context and which champion frugal entrepreneurial solutions that can work in the African context (Pansera, 2013; Pansera & Martinez, 2017; Slade Shantz et al., 2018).

Partnerships and intermediaries, training, and access to finance are identified as vital enablers of entrepreneurial success (Sutter et al., 2019). I shall discuss these as necessary but not sufficient factors in successful African entrepreneurship along with other vital considerations such as opportunity identification, sustainability, and cultural fit (Khavul & Bruton, 2013; Slade Shantz et al., 2018; Sutter et al., 2019).

3.4.1 Partnerships and Intermediaries

Partnerships between entrepreneurs who may be represented, for example, by NGOs and large organisations such as multinational corporations (Seelos & Mair, 2007) are vital in learning to identify and enable new and valuable opportunities. They also play a vital role in enabling informal actors to participate in the formal economy or to transition to it. Intermediaries, middlemen, and women, such as brokers or consultants, who mediate a link between parties, also play a vital role. In Bangladesh, for example, new jobs and business were created for the

very poor through a partnership between a Norwegian telco and an NGO famous for innovative lending arrangements to the poor, the Grameen Bank. Also in Bangladesh, the NGO and community compost-maker, Waste Concern, helped broker a relationship that created a company and ongoing business for the community with Map Agro, Bangladesh's largest fertilizer manufacturer (Seelos & Mair, 2007). Working with an experienced NGO not only helps in the identification of opportunities but also in the creation of institutional scaffolding and nascent institutional arrangements to support the process of formalisation (Sutter et al., 2019).

Such partnerships create a win-win situation, overcoming institutional voids for locals and providing the companies with valuable local support and knowledge (Sutter et al., 2019). They also provide vital adhesive in a successful business and EEs. For example, markets and community partners for Water Cura, a successful point of use water treatment system, were enabled by partnerships with non-profit NGOs, Global Action Networks, and World Resources Institute (Calton et al., 2013). Such partnerships are however not easy to execute, and investment in human capital through training is vital to their success (Sutter et al., 2019).

3.4.2 Training

Training that is well designed and culturally appropriate can improve opportunity recognition and develop the skills needed to optimally exploit them. There are a plethora of training programmes designed to reduce poverty through entrepreneurship. The International Labour Organisation's (ILO) 'Start and improve your business programme' has registered over 4.5 million trainees in more than 100 countries; business training modules for microfinance clients have been developed by Freedom from Hunger and the International Finance Corporation's (IFC) Business Edge and SME toolkit programmes have been widely used (McKenzie & Woodruff, 2013).

Disappointingly, evaluation of such programmes suggests they help prospective owners launch new businesses more quickly but there are relatively modest effects of training on the survivorship of existing firms (McKenzie & Woodruff, 2013). One example of successful training for existing firms is a clearly designed Japanese management training course used with small-scale metal workers working in a large Kumasi metal working cluster in Central Ghana. Workers' performance and the longevity of their business improved following the training (Mano et al., 2012). The programme's clear design and the opportunity for knowledge spillover in the cluster are seen as contributing to its success.

Another approach to training entrepreneurs is to emphasise and foster their personal initiative, entrepreneurial self-efficacy, and passion. In a large controlled study in West Africa, such training had a significantly greater positive impact on female entrepreneurs' business success than did traditional small business training (Campos et al., 2017: 1). Elements of this approach can be seen in Lean Launchpad training (Blank, 2013) widely used for western start-up companies; however, its use in Africa is yet to be fully investigated.

3.4.3 Finance

Finance is crucial for an enterprise to launch and grow but access to finance for women and marginal groups can be restricted by cultural norms and gendered institutions (Aterido & Hallward-Driemeier, 2011; Hallward-Driemeier & Hassan, 2013). This is especially true for female miners and traders who face an additional barrier from the informal nature of their work and their lack of collateral. Microcredit schemes, which are designed for those unable to access other formal or informal forms of finance, are widespread but without appropriate support for recipients they can have some negative consequences (Banerjee & Jackson, 2016). Those in poverty may struggle to repay loans (Banerjee & Jackson, 2016) and as they do not have alternative sources of finance or jobs to go to, the consequences can destroy communities (Alvarez & Barney, 2014). Banerjee and Jackson's (2016) ethnographic studies of communities using market-based microfinance schemes found increasing levels of indebtedness and "exacerbated economic, social and environmental vulnerabilities" (p. 63).

NGOs play a vital role in managing microfinance and protecting the community's fabric and social capital. In the case of small-scale mining business, finance for equipment is essential; however, microfinance is rarely effective as a simple commercial lending product in such communities (Spiegel, 2012a). The use of microfinance requires careful needs analysis and has to be accompanied by specific development goals, government-supported loans, and participatory business skills training with an emphasis on mobilizing micro-savings (Spiegel, 2012a). The hire purchase of equipment, with the option to progressively buy, is a better option. In a UNDP project with Sudanese female gold miners, Spiegel found factors crucial to success were mutual confidence and shared vision, self-determination of needs, and acceptance of diversity in the group, for example, tolerance of differing levels of education and literacy (Spiegel, 2012a). These findings concern the fabric of communities and resonate with Banerjee and Jackson's (2016) findings on the loss of social capital which can occur when microfinance projects fail.

Microfinance is not designed for creative entrepreneurs (Alvarez & Barney, 2014) as returns on investment may not be immediate. In contexts of poverty, without resources to bootstrap, such as support from family or friends, creative entrepreneurs can only succeed with the NGO partnerships mentioned earlier or perhaps with assistance from foundations or donors. Even with such assistance, partnerships, training, and finance alone will not have a lasting impact on creating wealth unless the entrepreneur is part of a strong business EE. Without such an ecosystem, investments in innovative solutions will “remain relics of good intentions” (Khavul & Bruton, 2013, p. 302).

In the following section I review some of the literature about EEs and consider why it has become so popular, for example, among policymakers. I define key concepts and give details of research about the role of knowledge spillover in EE creation, along with some recent work which considers the way informality can be accommodated within the EE. I discuss the small amount of literature on EEs in Africa and present some recent thinking about the way in which transnational EEs could be helpful in supporting social enterprise in Africa.

3.5 Entrepreneurial Ecosystems

3.5.1 Background

Within a broader framework which incorporates institutional factors and an understanding of entrepreneurial logics EEs can offer a promising approach to building social capital, supportive communities, and partnerships that could foster local entrepreneurship (Khavul & Bruton, 2013; Sutter et al., 2019). Spigel (2017) has defined EEs as:

[C]ombinations of social, political, economic, and cultural elements within a region that support the development and growth of innovative start-ups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high-risk ventures. (p. 50)

EEs may also be transnational as a recent series of case studies by Manning & Vavilov (2019) demonstrates. Spigel (2017), acknowledging the fledgling nature of EE theory, suggests that it represents more of a “conceptual umbrella encompassing a variety of different perspectives on the geography of entrepreneurship rather than a coherent theory about the emergence of communities of technology entrepreneurs” (p. 49). The focus on the ‘geography of entrepreneurship’ is certainly appropriate when thinking about development in emerging economies.

As in a natural ecosystem, there are varying interdependent relationships that support the growth of the system. Spigel (2017) has stressed the importance of the actors’ interdependence

and the dense networks that enable “productive entrepreneurship within a particular territory” (p. 1). Such networks may compensate for scarce resources as can be seen in the EEs of Accra, Nairobi, and Lagos. Although they may be poor in material resources (a sparse ecosystem), they function well in terms of the density of their networks that spread the resources that do exist (Spigel & Harrison, 2018).

The EE has today become a popular framework to “understand the nature of places in which entrepreneurial activity flourishes” (Audretsch et al., 2018, p. 471). It is espoused especially by practitioners and policymakers seeking models for local economic development such as Isenberg (2011) with six EE domains (human capital, markets, policy, finance, culture, and supports) and the WEF (World Economic Forum) with its eight EE pillars, which significantly include mentoring and universities (WEF, 2013).

3.5.2 Clusters and Defining Features of Entrepreneurial Ecosystems

The concept of EEs builds on Porter’s (1998, 2000) foundational work on economic clusters that sought to look outside the firm to “capture important linkages, complementarities, and spillovers in terms of technology, skills, information, marketing, and customer needs that cut across firms and industries” (Porter, 2000, p. 18). The concept is also heavily indebted to the original research of Audretsch and Feldman (1996) into the clustering of innovation and the vital role of knowledge spillover in research and development.

The difference between EEs and economic clusters is still the subject of some debate (Audretsch et al., 2018) and in some cases the terms are used interchangeably. Examples of clusters abound in developing economies such as the metal workers of Kumasi and emerald miners in Brazil (Mano et al., 2012; Puppim de Oliveira & Ali, 2011). While ecosystems may share many characteristics of a cluster, for example, market and technical knowledge, what differentiates an ecosystem from a cluster is its explicit focus on entrepreneurship. This includes the EE’s emphasis on start-ups and knowledge about the entrepreneurial process itself such as opportunity identification, business planning, and pitching (Spigel, 2017; Spigel & Harrison, 2018).

Finally, a defining feature of an EE as compared to a cluster and a necessary condition for its “shift from a cluster to an entrepreneurial ecosystem” is the key presence and involvement of entrepreneurs as mentors and advisers (Voelker, 2012, in Sheriff & Muffatto, 2015, p. 17). The entrepreneur creates a culture which values entrepreneurial knowledge and encourages risk taking, network development, trust, and learning (Argote & Miron-Spektor, 2011, in Spigel & Harrison, p. 201). Such a culture cannot be created through top-down interventions, but rather,

as Audretsch (2015) advocates, through the “strategic management of place” (p. 13) and a focus on cultivating the resources and communities that already exist.

3.5.3 Research into Entrepreneurial Ecosystems: The Dynamics of People, Process, and Place

The rapid adoption of EEs especially among policymakers has meant that it remains relatively under theorised as a concept (Audretsch et al., 2018). Likewise, research has been descriptive rather than analytical, featuring lists of attributes of successful EEs which are typically light on causal links and consequences (Alvedalen & Boschma, 2017). Attributes investigated include knowledge spillover (Audretsch & Keilbach, 2007), opportunity recognition and the creation and exploitation of new opportunities (Alvedalen & Boschma, 2017), and the role of connectivity (McAdam, Harrison, & Leitch, 2019). A significant shortcoming in relation to our research on gendered GVCs is that most studies are bound to one place with few multi-scalar studies that look across the spatial and temporal configurations of linkages (Mack & Mayer, 2016). Only recently has gender as a factor in EE development been acknowledged (Brush, Edelman, Manolova, & Welter, 2018).

A key question in current research on female entrepreneurship concerns contextual factors and the ability (or lack thereof) for female entrepreneurs to develop social capital in an EE. Recent research suggests that the boundaries of social capital will vary for men and women according to the type of venture. In high-growth ventures, social capital was less likely for women than men. In lifestyle and social enterprises, the effect was reversed for female entrepreneurs (Neumeyer, Santos, Caetano, & Kalbfleisch, 2019). “Future research on entrepreneurial ecosystems needs to examine the configuration of different venture types more systematically” (Neumeyer et al., 2019, p. 488). Institutional work is needed to redefine the boundaries of social capital for both men and women in all types of ventures. This requires institutional change by actors who “[leverage] resources to *create* new institutions or transform existing ones” (Maguire et al., 2004, in Lawrence & Phillips, 2019, p. 208).

Also important for my research, there has been little attention to the institutional and political factors that impact on EEs. In response to this, Alvedalen & Boschma (2017) propose research with an uncompromising focus on institutional change, for example, asking why some agents are able to create institutional change in particular regions and how institutions can block institutional change and prevent the growth of dynamic EEs. These subjects are pertinent to my research which has attempted to address some of these institutional factors.

Audretsch et al. (2018) have called for critical research examining, for example, “the dynamics of people, process and place” (p. 471) in nurturing entrepreneurial behaviour and the role of policymakers and non-profit organisations. Understanding the role of NGOs and policymakers is valuable for my research into EE development in the context of poverty. This knowledge is essential to avoid the trap of applying features of one successful ecosystem to a context where they are not appropriate (Spigel, 2017).

3.5.4 Entrepreneurial Ecosystems in the African Context

It is acknowledged that EEs “could be useful road maps for the formulation of entrepreneurship policies for countries in Africa” (Sheriff & Muffatto, 2015, p. 17). However, literature on EEs in the African context or information on how to build “entrepreneurial ecosystems that support endogenous regional growth in the context of poverty” (Sutter et al., 2019, p. 2108) is as yet sparse. For example, Sheriff and Muffatto (2015) describe entrepreneurship ecosystems in Botswana, Egypt, Ghana, and Uganda; while they found entrepreneurs present everywhere, EEs were static. In Ghana, as in the other countries, programmes to encourage entrepreneurship do exist but there is no mention of “enterprises which can form clusters [and] the country needs programmes that will create an environment conducive for start-ups and SMEs” (p. 35). Sheriff and Muffatto (2015) fail to document the important role of diaspora, for example, hypermobile young West African entrepreneurs (Adom, 2015). They also fail to mention the ecosystem that has been encouraged around large-scale gold miners such as the Ahafo Linkages programme (Bloch & Owusu, 2012).

Beugré (2017) in his textbook “Building Entrepreneurial Ecosystems in Sub-Saharan Africa”, posits a quintuple helix entrepreneurial ecosystems of civil society, university, the private sector, government, and international organisations. As does Isenberg (2011), Buegré highlights how the extended family and the diaspora could be transformed into assets to foster entrepreneurship in sub-Saharan Africa. Family support can be useful in launching an enterprise but family obligation can also limit the entrepreneur when it comes to scale and expansion (Nafziger, 1969). However, Buegré misses two crucial elements of EE development. First, there is hardly a mention of markets or market development. Just as serious is that there is no place in his model for the informal sector as, in his view, it “cannot help sub-Saharan Africa leverage its vast resources for competitive advantage and economic growth” (p. 4). Given that up to 90 per cent of business is transacted in this sector in Africa, this seems an anomaly. Buegré does have chapters on the role of government, civil society, and universities

in the EE but his failure to incorporate the informal sector and in particular the poor as part of the ecosystem, provides a limiting view.

A much more promising approach is taken by Gómez et al. (2020) who see beyond the dichotomy of formal and informal and propose a multilevel framework of formality. They contend that especially in developing economies, informality is compatible with dynamic EEs and growing business (p. 194). For example, research by a wide range of scholars has found that “poor entrepreneurs within [these] ecosystems benefit from support and connections to government bodies and external resources” (Sutter et al., 2019, p. 208; see also Khavul & Bruton, 2013). Such support is rarely found in Africa and yet it is vital if training and finance are to be used to grow productive EEs. Recent research has proposed that such support can come from the involvement of transnational partners (Manning & Vavilov, 2019).

3.6 Building Entrepreneurial Ecosystems with Transnational Partners

3.6.1 Transnational Ecosystems

A recent series of case studies by Manning and Vavilov (2019) illustrates the value of a transnational approach to EEs and a possible way forward for EE development in Africa. The case studies show how intermediaries in transnational ecosystems in Boston provide and shape services for young entrepreneurs in Nairobi, Kigali, and Kampala. The social ventures are in energy, water, finance, account management, and the Rwanda branch of a US-based business development consultancy working with refugees. Particularly helpful for these ventures has been the building of shared alliances in enterprise development, for example, providing facilities (such as innovation labs), funding, and expertise. Other alliance-building activities are multi-scale joint events like the annual global competition for entrepreneurs addressing social problems. This is held at the University of Rwanda and Carnegie Mellon and provides Scale Up grants with funds for both African and US university students. Manning and Vavilov (2019) argue that by extending the boundaries of EEs to include transnational EEs, social enterprises can mobilise institutional support in the context of institutional voids. Their work goes some way to responding to criticisms that EE research has lacked multi-scalar studies that span the spatial and temporal configurations of linkages (Mack & Mayer, 2016). It also resonates strongly with my work to encourage transnational partnerships to strengthen the participation of women in the informal sector in the global gemstone supply chain.

3.6.3 Knowledge Transfer and Knowledge Spillover in Entrepreneurship

Knowledge generation, knowledge transfer, and knowledge spillover are highly significant in the African context where new knowledge about innovation can enable industries to leapfrog more traditional paradigms. A good example is in the African banking industry (Berger, Molyneux, Wilson, Beck, & Cull, 2015). The terms knowledge spillover and knowledge transfer are sometimes used interchangeably but in the entrepreneurship literature, the two are different: knowledge spillovers are the “unintentional flows of knowledge from one network party to another” (Ko & Liu, 2015, p. 263) and differ from other types of knowledge transfer in that there is no deliberate action to obtain the knowledge as it happens by chance. By definition, knowledge spillovers do “not involve compensation (or full market-rate compensation) to knowledge ‘holders’ from knowledge ‘recipients’ when the flows happen” (Qian, 2018, p. 165). A key point is that this knowledge spillover is available because only a small number of entrepreneurial opportunities generated through research will actually be pursued as commercial activities leaving the spillover for others.

A substantial theoretical school, the knowledge spillover theory of entrepreneurship, has developed. It considers entrepreneurship to be a major mechanism that transmits knowledge spillovers (Acs, Braunerhjelm, Audretsch, & Carlsson, 2009; Audretsch & Keilbach, 2007; Qian & Acs, 2013). According to this theory:

Contexts rich in knowledge should generate more entrepreneurship, reflecting more extensive entrepreneurial opportunities. By contrast, contexts impoverished in knowledge should generate less entrepreneurship, reflecting less extensive entrepreneurial opportunities. (Audretsch & Keilbach, 2007, p. 1248)

The ultimate aim of this research is to contribute to the creation of contexts which are rich in knowledge about gemstones and their supply chains and which can create entrepreneurial opportunities for women and their families.

Chapter Summary

In this chapter I have juxtaposed literature from institutional and entrepreneurship theory to better examine and provide new insights into women’s work in the gemstone value chain. I have considered the opportunities and challenges women face on the pathway to personal and economic empowerment, for example, the impact of gendered institutions and more general questions about how to manage the informal sector in value chains

In my review of selected aspects of institutional theory, I have referenced North (1991) and Scott's (1995) contribution, and discussed gender as a social institution that intersects with other institutions to disadvantage women. I have defined the concepts of institutional voids, institutional work, and proto-institutions and review the literature using these concepts. My major focus was on the way in which institutional theory can help theorise some of the issues faced by value chains which have informal nodes and economic actors that exist at the interstices of formal and informal institutions. Proto-institutions and intermediaries can play a vital role in opening up pathways to formal markets for women working in the informal sector. I then selectively examined aspects of entrepreneurship theory including a recent review of entrepreneurship and poverty. In this review partnerships, intermediaries, training, and access to finance emerged as key enablers of entrepreneurship. I reviewed the literature on EEs in some detail and argue that EEs could accommodate and nurture informal entrepreneurs within a broader formal sector. I highlighted another promising study which showed the role of transnational EEs in enabling the growth of social enterprise in Africa. Insights from institutional and entrepreneurship theory will also be valuable in Chapter 4's review of applied literature on global supply chains and women's role in ASM.

Chapter 4

Literature Review: Global Value Chains, Global Production Networks and Women in Artisanal and Small-scale Mining

Chapter Overview

In the first part of this chapter I focus on GVCs and GPNs in the extractive industries and agriculture and also consider how women's extensive participation in these global chains has impacted on their personal and economic empowerment.

In the second part of the chapter I provide a brief historical overview of literature on women in ASM beginning with the Harare Guidelines for the Development of small and medium-scale Mining in 1993 and the work of Labonne (1996). I then present a selected thematic review considering women's motivations for participating in ASM, the institutional and gendered constraints they face, and the impacts these have on their work, remuneration, and health. I then discuss literature which reveals the way women have found ways to progress themselves in ASM and through working as traders, cutters, and jewellers. I conclude the chapter with a discussion of the moves to formalise the industry and why this may disadvantage marginal actors, particularly women.

In both sections of this chapter my aim to draw upon the literature to better understand the challenges women face and the opportunities that are available to them. The intent is also to theorise new knowledge to apply to this domain.

4.1 Global Value Chains and Global Production Networks

In this section I provide definitions of GVCs and GPNs and related terminology. I then discuss points of difference between GVCs and GPNs and the reason why I have used both terms in this review. An example from the Malagasy manufacturing industry is given to illustrate the value of a GPN analysis in revealing the impact of institutional failure on women's work in a global value chain.

4.1.1 *Definitions and Use of Terms*

The literature on the jewellery and gemstone supply chains is frequently accompanied by supply chain maps, some are circular, some horizontal, and different terms are used such as supply chain (Chichester et al., 2018), value chain (Cross et al., 2010; Shortell & Irwin, 2017), and GPN (McQuilken & Hilson, 2018). In Table 5, I briefly define some of these terms.

Table 5 Value Chain Terminology, Definitions, and Key Concerns

Term	Definition and key concerns	Author
Commodity chain	A network of labour and production processes whose end result is a finished commodity. It begins with the final production operation and moves sequentially backward to the primarily raw material, each of these operations constitutes one ‘node’ of the chain.	Hopkins and Wallerstein (1986, p. 159)
Global commodity chain	Global production and sourcing networks	Gereffi (2010)
Supply chain	A related and widely used generic term, that is, a “label for an input–output structure of value-adding activities, beginning with raw materials and ending with a finished product in international production networks”.	Gereffi (2010, p. 168)
GVCs	A popular overarching term for researchers that brings a “focus on value creation and value capture across the full range of possible chain activities and products”. Being firm centred, it emphasises the value of each of the economic activities that are needed as a product moves from its creation ultimately to its disposal or recycling. GVC analysis provides insight into how economic actors create and capture value by taking advantage of geographic differences in costs, factor endowments, regulatory frameworks, and consumer bases. It has significant application in poverty alleviation. See http://www.capturingthegains.org/ .	Gereffi (2010, p. 168)
GPNs	The firm is at the centre of the analysis and the GPN locates other business actors and their positions in multi-sited networks supplying the firm and also social or political factors that may impact on network. It uses ‘production’, rather than ‘commodity’, to prioritise social processes and the interaction between agents comprising network dynamics. It highlights intersecting notions of power, value, and embeddedness and horizontal relationships, institutions and actors who surround the value chain who may play a pivotal role in setting the conditions for production and trade.	Coe et al. (2008, p.266), Henderson, Dicken, Hess, Coe, and Yeung (2002, p. 348); Muradian, Verschoor, Bolivar, and Ochoa (2011, p. 270)
Chain of custody	This provides an assessment of corporate processes and production conditions for every company with financial ownership of the respective product in an established certified chain (for example, Forest Stewardship Council and Marine Stewardship Council).	Hofmann, Schleper, and Blome (2018)

Source: Author

GVC analysis is an economic tool and its concern is to analyse value creation and value capture across the full range of possible value chain activities and end products (Gereffi, 2010). It is also committed to the equitable distribution of profits and governance mechanisms in the value chain (Gereffi, 2010). The GPN also analyses supply chains but with a focus on the multiple actors in the chain. Often used by social and economic geographers, it aims to analyse organisational structure horizontally as well as vertically. It is especially concerned with embeddedness: “[H]ow actor’s behaviour is shaped by social roots and background as well as the institutional, legislative and regulatory environment” (Barrientos, 2019, p. 9). To analyse the gemstone supply chain, it is vital to understand such multiple and often marginal actors including those in the informal and artisanal spaces. The GPN has mostly been used in the formal sector of developed economies, until its recent use by McQuilken and Hilson (2018) in the Ghanaian diamond value chain demonstrated its value for ASM research. To provide a full picture of global supply chains, this survey of the literature will draw on both GVC and GPN analyses of the supply chain.

In this review, I am particularly concerned to understand the role of gender in global supply chains. Bringing a gender lens to this supply chain analysis also reveals enablers and hindrances for women’s participation at each node in the value chain and crucially how their positions can be upgraded and improved (Barrientos, 2019; Barrientos, Gereffi, & Rossi, 2018). Both the GVC, but particularly the GPN, provide an excellent framework within which to consider the role of gender in value chains as can be seen in the work of Barrientos (2014, 2019). The next section provides some examples of the way the tools are used, especially in the large manufacturing chains where many women are found, before considering in-depth examples in the extractives which is the domain of this research.

4.1.2 Early Work

Originally much of the work done with GPNs focussed on the manufacturing industry across a wide range of sectors such as aircraft (Bowen, 2007), freight forwarding (Bowen & Leinbach 2006), and the apparel sector (Barrientos et al., 2018; Hodges et al., 2015; Tokatli, 2007). In the case of apparel, one of the key challenges has been social upgrading, how to improve the quantity and quality of employment in particular for the predominantly low-paid female workers (Tokatli, 2007). Powerful evidence of the usefulness of a GPN analysis and valuable insights for this research can be seen in a case study of the Madagascar apparel industry conducted by the Gereffi’s ‘Capture the Gains’ project (Staritz & Morris, 2013). It reveals how the industry and workers suffered the damaging impacts of institutional failure and

incongruence “in the form of regulatory inefficiencies combined with inadequacies in industry-specific institutional arrangements and policies” (Staritz & Morris, 2013, p. 13). The impacts of a dysfunctional political economy on the lives of working women are clearly captured in this case with apparel exports declining dramatically after a coup in 2009 and the number of factory employees falling from 100,000 to 55,000 in the space of three years (Staritz & Morris, 2013).

In the next two sections I review literature examining GVCs and GPNs in the extractive industry. The purpose for doing this is to show the value of the GVC and GPN in analysing the processes of transformation and value addition that occur along the value chain. This is vital to capture in the gemstone value chain where the impacts of each node can have a big impact on value. The GPN can also show how multiple actors can impinge on the chain. In particular, I examine the GPN of an ASM diamond site in some detail as it reveals the complex interactions and horizontal relationships which make up the network. In the subsequent sections I discuss the gendered GVCs and GPNs of global agriculture.

4.1.3 Use of GPNs in the Extractive Industry

Studies of the GPNs for natural resources are increasing, for example, an analysis of the oil industry provides a nuanced understanding of the petroleum supply chain capturing:

[T]he multiple ways in which the hydrocarbon production chain is territorially embedded at different points along its length, its simultaneous embedding in multiple territorialities and the way its multi-national character influences the balance of power along the production chain. (Bridge, 2008, p. 389)

The GPN also captures the specific nature of civil society and its use of the ‘political’ mechanisms of direct pressure on firm and state activity. Another study by Santos and Milanez (2015) examines the Brazilian node of the GPN for iron ore and the “iterative relationship between economic and social agents” in this GPN (p. 756). It also captures the links with the associated political and ecological economies. From this analysis, they uncovered the dynamics of the contestation networks and local-level actors who opposed the industry. They could evaluate the extent to which the Brazilian node of the iron ore GPN influences and is influenced by the strategies of economic actors. A strength and distinctive feature of GPN analysis is this capacity to capture the reciprocal nature of such influences. The authors also examine economic and social embeddedness, and how these intersect with power, in this case, the Brazilian miner, Vale. Unfortunately, no mention is made of gender or impacts on vulnerable populations in the GPN.

Opportunities for local development can also be revealed as can be seen in a study of inclusive bio-trade value chains which combines both GVC analysis, to capture governance, and GPN analysis, to demonstrate the richness of the actor network (Muradian et al., 2011). ‘Inclusive’ business models include vulnerable groups in the value chain through actions of a lead firm; ‘bio-trade’ value chains find innovative market uses for new, local biodiverse products. They can involve both large firms and small-scale rural agents. In this case, the GVC and GPN analysis revealed a promising inclusive bio-trade value chain and market for perfumed wood and chili from the Amazon.

Murphy’s (2012) study of the Bolivian tropical hardwood industry enriches GPN theory and practice by providing a framework for understanding how production networks develop (for example, through entrepreneurs, government, and civil society) and the “relational processes that firms in industry use to build ties to international markets” (p. 210). Murphy also records the gender of the owner or manager interviewed. This has not always been common practice and this data provides vital insights into the actor network. This type of framework that incorporates relational processes and ties to international markets, is very pertinent to the gemstone production network.

More recently, GPNs are seeking to capture “the material transformations at the heart of GPNs and commodity chains” (Bridge & Bradshaw, 2017, p. 220). There is a particular emphasis on “nature-facing primary sectors, such as forestry, fisheries, mining, and agriculture, which are strongly characterised by seasonality, biological reproduction times, and geological and ecological variability” (p. 220). Bridge and Bradshaw (2017) highlight “the techno-material reconfigurations” (p. 215) of converting natural gas into liquefied natural gas (LNG) whereby the reduced mass of LNG is able to be shipped and sold economically beyond the continental limits of pipelines in Central Queensland to Japan. This type of detail is helpful in framing the transformation that occurs along the value chain for gemstones.

4.1.4 A GPN Analysis of ASM Diamonds

The GPN’s capacity to provide an almost forensic but flexible framework for uncovering how networks work is used probably for the first time in an ASM setting by McQuilken & Hilson (2018) in mapping the small-scale alluvial diamond industry in Akwatia, Ghana. The ASM sector globally lacks data (World Bank, 2019) and this study shows how GPNs can be used to provide a detailed and multileveled analysis of the network of actors operating across the town illustrating:

[H]ow the intricate relationships forged between certain actors drive activities, and affect the movement of finance and stones at the lower echelons of the supply chain for alluvial diamonds in Ghana. (p. 978)

Such actors are often neglected by high-level analyses of the ASM industry with simplistic, skeletal flow charts. A consistent feature of GPN analysis is its emphasis on the value of understanding the horizontalness of networks and not just the vertical (p. 985).

McQuilken and Hilson (2018) start by documenting the Ghanaian node of the global diamond supply chain and then mapping upstream, middle market, and downstream parts of the chain. The institutions, agencies, and schemes regulating diamond production in Ghana are outlined along with their institutional roles and responsibilities. This is followed by a detailed summary of eight stakeholder groups from the licensed buying company to the tributer.⁶ These steps permit a nuanced understanding of power and value relations. McQuilken and Hilson (2018) argue, “these informal agreements and local-level dynamics, in turn, determine value, dictating whose hands the diamonds pass through in the various nodes of the production network” (p. 999). Other forms of value are also captured through a consideration of the ‘horizontalness’ of network nodes, for example, tributers creating value through informally subletting or ‘parcelling out’ their plots to smaller groups or investing in particular technologies, such as crushing and washing machines (McQuilken and Hilson, 2018, p. 999). Another example is ‘sharing’, which occurs when diamondiferous ore is exposed, and is then divided into three portions, one each going to the tributer, the sponsor, and the labourer. The dynamics of this ‘sharing’ arrangement “provides insight into the multiple forms of power and value” characteristic of ASM sites (p. 1001). A constant reproach of the ASM sector is its informal nature. This network approach reveals in a systematic way the synergies between the formal and the interstitial informal sector (Harriss-White, 2010), as, for example, when an informal trader borrows from Diamond House in Accra. These useful synergies and the examples of horizontal value creation mentioned above are often lost when the ASM industry is simply labelled as informal and anarchic. As the authors point out, such analyses can provide vital information to organisations such as the OECD and UNECA who are advocating the formalisation of the ASM sector.

I have discussed McQuilken and Hilson’s (2018) GPN analysis of the ASM diamond industry in Akwatia in some detail as it provides a valuable and new point of entry into understanding

⁶ A tributer is licensed directly by the Ghana Consolidated Diamonds to mine a demarcated plot of land on the concession (McQuilken & Hilson, 2018, p. 997).

the ASM supply chain. Two caveats must be made. First, the GPN assumes the presence of a firm at the heart of its framework; this is not usual in ASM and this would need to be taken into account in adapting the GPN for the ASM context. Second, apart from one quick reference to the fact that all equipment renters are women (p. 997), the GPN analysis documented is silent on the role of women in the network. This a missed opportunity for a paper published in 2018. In the next section, I introduce the issue of gender in the workplace, in particular the opportunities which are offered to poor women in the factories and industries which supply GVCs. Alvesson and Billing's (2009) work on gender inequality and stereotyping in the workplace helps frame a critical examination of the opportunities for women in the supply chain. I then use these insights to explore women's work in the GPNs of multinational agricultural chains through the work of Barrientos (2008, 2013, 2014). These studies are important as they show the transition of rural women to the formal economy, its impacts on women, such as inequality and stereotyping, and the institutional work of actors to improve conditions for workers. There are a number of lessons to be learned for the formalisation of the gemstone value chain.

4.1.5 Women in the Supply Chain

In the previous chapter, I discussed gender as an institution and the double set of constraints women may experience, particularly in traditional societies, because of formal and informal institutions (Kabeer, 2012). Such institutions also condition women's work in the global supply chains of large multinational firms supplying western markets, for example, in factories in Asia and the Indian Ocean Rim and farms in Africa. A high proportion of their primary workforce is women, particularly young, rural, and unmarried women (Mills, 2017). Finding employment in such GVCs can be life changing for poor women and their children, providing a level of financial independence for the first time. However, women's roles in GVCs must be critically analysed.

Alvesson and Billing (2009) emphasise that the most significant issue related to gender in the workforce concerns inequality that is attributable largely to the segregation of roles. An important point for this research raised by Mills (2003) is that this inequality is not confined to one segment of the economy but spans the GVCs extending to the informal sector.

Combining a feminist and organisational perspective, Alvesson and Billing (2009) make two broad distinctions to understand such inequality in the workplace: 'gender-in-organisations', what happens to men and women at workplaces; and 'gendered organisations' where the emphasis is on the culture created by employers. In factories found in GVCs both these

distinctions are important. Gendered organisations are created by employers acting as gatekeepers deciding the gender division of labour and who is hired for economic reasons or because of sex role stereotypes (Reskin & Padavic, 2002). Organisations can benefit from gender stereotypes and women “having learnt that their place is in relatively low paid jobs [and] a gender division of labour which means that compliant and cheap female labour is accessible” (Alvesson & Billing, 2009, p. 3). Such stereotyping becomes even more insidiously limiting when it intersects with racial and gendered dimensions of disadvantage, typified in the ‘disposable third world women’ and their ‘nimble fingers’ (Wright, 2006, in Mills, 2017; Elson & Pearson, 1981). Such workers are also cheap and compliant.

High economic growth in Asian and Indian Ocean Rim nations in the past decades has drawn heavily on the labour of the poor, and poor women, in particular. Ruthless competition among multinationals to find the ‘cheapest’ and most compliant workers to make their products (Chen, 2019) drives such discrimination and can lead to extreme working conditions. Institutional voids lead to the absence of governance of even basic human rights in the workplace as was seen clearly in the collapse of the global clothing factory used by many popular brands at Rana Plaza in Bangladesh in 2013. At least 1,132 workers died and thousands more were injured; most were young women and female heads of households (Enloe, 2014). This tragedy has led to some reforms and changes in law and regulations, but there has still been little discussion of the norms and masculinities that keep women’s labour cheap (Enloe, 2014).

Local gender norms can also be reproduced in workplaces in the GVC, whether it be a factory or a flower farm. The workplace can have its own hierarchy and masculine culture which can significantly disadvantage, if not exploit, women. Gendered norms around the type of work women can and cannot do perpetuate inequality, for example, in factories where women are found in the lowest paid categories and men are found in managerial roles (Mills, 2003). Gendered norms also persist in the types of industry women can typically be found in, such as lower-paid ‘light’ industrial work for women and better-paid ‘heavy’ industrial work for men (Enloe, 2014). Also, instances of the worst forms of patriarchy and exploitation through sexual harassment and violence towards vulnerable female employees have not been uncommon in multinational GVCs (Moghadam et al., 2011).

Women’s increased participation in production through globalisation and how this impacts on gender equity has been of keen interest to many feminist scholars (Dunaway, 2013; Elson & Pearson, 1981; Gray, Kittilson, & Sandholtz, 2006; Jackson & Pearson, 2005; Rai & Waylen, 2013; Ware Barrientos, 2014). It is also a concern for those interested in global gender equity

in the labour force and formalisation (Boserup, Tan, & Toulmin, 2013; Chant, 2010; IFC, 2013; Semyonov, 2018).

Such research could be enriched and sharpened by a gendered analysis of GVCs and GPNs. In a critique of Dunaway's (2013) wide-ranging case studies of gendered commodity chains, Ware Barrientos (2014) argues that the research is limited by its failure to engage with GVC and GPN methodology leaving it with "few analytical tools for in-depth unpacking of the qualitative shifts [in gender relations] that have taken place at different phases within the world economy" (p. 392).

4.1.6 Gender and Global Value Chains and Global Production Networks

Both GVC and GPN analysis can help frame a gender perspective in the analysis of supply chains. While the GVC literature has been criticised for concentrating on linear inter-firm relations to the exclusion of labour and gender (Barrientos, Dolan, & Tallontire, 2003), understanding these commercial interlinkages is equally important. Changes at one end of the value chain can have repercussions (often unintended), particularly on women, at the lowest paid end. The gender dimension is also often missing from the GPN analysis of production networks. This is despite the opportunity to consider gender that is afforded by the GPN's focus on societal, territorial, and institutional embeddedness and power relations.

An analytical challenge faced in examining the gender dimension of GVCs and production networks is the often 'hidden' nature of women's engagement, relative to that of men. Feminist analysis has highlighted that this arises from a long established gender division of labour in market economies between productive activities, which enter into market exchange, and reproductive activities, which take place mainly in the household (Barrientos, 2019). This is the case in small-scale mineral production networks where some aspects of processing are done at home, such as separating mercury gold amalgam in kitchen pots in Ghana and cutting and polishing gemstones at homes near gem-trading hubs in Thailand. Also important to capture is the impact of the unpaid and unrecognised burden of domestic and reproductive duties on women's empowerment, such as the time taken away from girls' schooling and women's paid employment.

Barrientos (2019) has recalibrated the GVC/GPN approach and its heuristics to include a focus on gender in a wide range of value chains. She draws on insights from feminist economic literatures such as Elson and Pearson (1981), Barrientos (2013, 2014), and Barrientos, Knorringa, Evers, Visser, and Opondo (2015). Her work will be examined in detail as it is particularly pertinent to my examination of the opportunities for women in the global gem

supply chain. Its concern with institutional governance and upgrading (to better pay and conditions) are also vital considerations for the gemstone industry and require a consideration of institutions and institutional work. Her detailed and rich gender production network analyses cover horticulture, agriculture, and apparel. It is understood that no gendered GVC/GPN analysis of mineral value chains has yet been conducted (Barrientos, personal communication, 1/6/2019).

Barrientos (2019) asks critical questions about whether GPNs are really bearers of gender transformation and opportunity or if engagement in retail value chains generates new forms of exploitation and gender inequalities. These questions align with the overall research question posed by this research on how women can be empowered through involvement in supply chains. These questions are particularly relevant to Thai gem and jewellery workers engaged in retail value chains, for example, multinational companies such as Pandora. They are also relevant to rural women like those in ASM who face similar issues to female farmers in the formalisation of their industry and the drive to certify their products.

4.1.7 Gendered Global Production Networks in Agriculture and Horticulture

Barrientos (2013), in her gendered production network analysis of cocoa production in Ghana, found evidence of discriminatory gender norms. Cocoa was traditionally a male crop, leaving women with positions of unpaid family or casual labour. With the introduction of large-scale farming, women's work was recognised as being important for good yields and quality. Women now spent more time drying beans and carefully pruning young trees to ensure quality crops. Yet, they were paid less than men and not included in extension and training activities. One result of this GPN analysis was firm-led institutional change. Cadbury and UTZ (one of the largest sustainably sourced cocoa producers globally) are now making gender a focus of their certification programmes. This is a positive move but on its own it will be unlikely to dislodge long-standing gender bias nor reduce the institutional inequity that keeps many of the farmers of this lucrative and luxury product⁷ in poverty.

The sale of fresh tropical fruit to Europe is big business for African producers. Barrientos (2019) presents two case studies conducted in Ghana of the gendered production network for pineapple. An important aspect of GPN analysis is commercial context. In the first case study,

⁷ Of the USD 100 billion value in the chocolate industry, only USD 6 billion goes to producers (Commod Africa, 2019).

that of a large-scale pineapple farm, a market crisis in 2005⁸ had forced Ghana to shift away from small-scale farming to farming with multinational companies for export. This changed women's participation in the industry with some women losing out completely as small family farms collapsed and some women finding work on large-scale farms, earning their own wage for the first time and becoming more visible and independent.

Work on large-scale farms was not free from its own set of challenges, perpetuating gender norms about women's work. Factory managers excluded women from certain jobs and the work itself is seasonal and dependent on demands of foreign supermarkets. In the second case study, of a fruit-processing factory providing sliced fruit for European supermarkets, there is a clear example of employment upgrading for women. Through the institutional work of a female social entrepreneur, more skilled and better paid female workers are employed.

Changes at the top end of the value chain (for example, a change in patent status at the US office of Del Monte), seem to have impacted some women positively; however, in conducting an analysis of the gendered impact of this GPN, it is vital to consider the embeddedness of the network and power and the value of women's work. While engagement in global retail value chains can promote more gender equitable outcomes in some groups, Barrientos (2019) concludes cautiously:

Over time, the outcomes have been mixed [and] closely bound up with not only the commercial shifts taking place but also the deeply embedded societal norms shaping land tenure based on gender, race and migrant status. Even where economic and social upgrading has occurred, gendered discrimination continues to prevail within agricultural production and the division of labour at different segments of the value chain. (p. 166)

Institutional work catalysed through a series of social movements that included NGOs, unions, and mobilising industry, led to an upgrading of conditions for women in the flower GVC/GPNs in Kenya (Barrientos, 2019). Kenya has become the fourth largest exporter of flowers globally, employing 100,000 people directly and 2 million indirectly, 75 per cent its workers are women (Oxford Business Group, 2018). There is clear evidence of a gendered division of labour with most women working in lower-paid jobs in the field and pack houses, and men

⁸ Demand for Sweet Cayenne, the small-scale farmed Ghanaian pineapple, fell dramatically in 2003 after the introduction of MD2, a smaller, sweeter fruit, whose US patent had expired. MD2 was available for large-scale farms and preferred by many consumers in Europe and North America leading to the collapse of Sweet Cayenne farms.

typically undertaking supervisory roles. In the early 2000s, there was a wave of workers' protests, which resulted in significant institutional change with more permanent contracts, more women in supervisory positions, and less reports of sexual harassment (Barrientos, 2019).

However, wages are still very low in the first stages of GVCs like flowers, cocoa, and fruit, and these chains demonstrate a failure of governance both at the company and governmental levels. Structural inequality persists and social upgrading is not automatic with women with low levels of education stuck at the lowest rungs of flower farms (Barrientos, 2019; World Bank, 2007).

A powerful example of institutional work led from inside a company is Finlays Horticulture, a large Kenyan firm. Following protests and social audits in 2004, Finlays took a decision to demonstrate leadership in equal opportunity employment (IFC, 2013), a powerful discursive and organisational strategy for institutional change (Lawrence & Phillips, 2019). To overcome the educational voids that were keeping women at the lowest rung, they put in place a comprehensive programme to train workers in specific competencies and technical upgrades but also in general levels of education and literacy (IFC, 2013). This has led to improved worker representation and space for female workers to express their grievances. Long-term impacts have included appointing more women to supervisory and senior roles and an overall increase in productivity (IFC, 2013). Finlays has linked these measures to support women's employment to a direct drop in company-wide absenteeism by 7 percentage points (IFC, 2013). GVC analysis has highlighted the importance of good governance, particularly through the work of Gereffi and colleagues in the Capturing the Gains Project (Barrientos, Gereffi, & Dev Nathan, 2012). The next section will discuss three forms of governance (Mayer, Phillips, & Posthuma, 2017). This has implications and lessons for the formalisation and governance of gemstone supply chains.

4.1.8 The Governance of Global Value Chains

The governance of GVCs is vital in protecting and bringing changes to the lives of workers as can be seen in the agricultural cases mentioned above. Good governance to condition and regulate industry operating in these chains can be achieved by establishing formal institutions (for example, Utz standards within firm such as the Cadbury) and informal institutions (for example, the civil society protest movements which led to Finlays' leadership). Mayer et al. (2017) identify three forms of governance: public, which involves national government policies and international policies established through intergovernmental agreement; private, adopted by companies; and social, the formal and informal rules of business behaviour demanded by

worker organisations and other elements of civil society. Overarching human rights frameworks, such as the UN Guiding Principles for Business and Human Rights and the Ruggie Principles, are enabled when stakeholders from all three forms of governance work together (Mayer & Posthuma, 2012).

Across these case studies of women in global supply chains, I can see the important role of institutions of governance in bringing about change. These institutions can be trade policy, standards, and institutional work done by civil society actors. Effective governance is industry specific; for example, with apparel, trade policy⁹ has had a profound effect on the location of production, on possibilities for economic upgrading, and occasionally on leveraging improvements. For agriculture, supermarket standards drive change (Mayer & Posthuma, 2012). In the jewellery industry, civil society pressure is leading to increased social governance. An example is World Vision's campaign to combat child labour in the jewellery production network (World Vision, 2013).

However, as has been seen through these case studies, the most effective institutional work is achieved in the governance of GVC/GPNs when public, private, and social governance work together. This was seen in the Kenyan flower industry where a combination of supermarket codes, multi-stakeholder initiatives, labour legislation, collective workers action, and bold initiatives by firms themselves have made a difference in conditions of employment for women (Barrientos, 2019).

In a paper on the capturing of opportunities for African development from GVC participation, a number of possibilities are identified arising from South-South trade and expansion of lead firms within Africa serving African consumers (Goger et al., 2014). They conclude that in the African context, GVC participation does not guarantee that small producers and vulnerable workers, women in particular, will be better off. They argue that “multi-faceted and strategic policy approaches [private and public] are necessary to successfully promote more inclusive growth and contribute to poverty reduction” (p. 2). A concrete example of such policy and effective governance at work can be seen in the growing trend to develop “inclusive” practices in value chain development especially in agricultural value chains. An example of such policy can be seen in guidance documents for developing gender-sensitive value chains.

⁹ For example, the African Growth and Opportunity Act (AGOA) enabled the growth of a vibrant clothing manufacturing industry in Madagascar employing many women, with the AGOA loss following an illegal presidential coup in 2009, many women were made jobless (Staritz & Morris, 2013).

4.1.9 Gender-equitable Value Chain Development

There is an increasing recognition of inequality related to factors like gender, age, or ethnicity that can occur at particular nodes of the value chain (Stoian, Donovan, Elias, & Blare, 2018). Gender equity has become a particular focus and in the agricultural sector and this has led to the development of a wide range of guidance documents for developing gender-sensitive value chains (for example, by USAID, FAO, the ILO, and the Bill and Melinda Gates Foundation).¹⁰ However, Stoian et al.'s (2018) review of seven of these tools found that the guides did not deal well with normative elements that influence gender relations or gendered participation in collective enterprises. Little attention was given to areas of jointness and negotiations within the household or to strengthening women's negotiating power. Also neglected was a consideration of the impact on households of increasing female economic participation and subsequent renegotiated gender relations; for example, challenges to men's idealised roles as business and community leaders and household providers (p. 505). These critiques resonate with points made by Cornwall (2007) where she argues for an approach that deeply embeds women's agency in relationships and contingency, an approach that can "accommodate the mediation of agency and the tensions between autonomy and connectedness that course through women's lives" (p. 28).

The next section will conclude this review of the GPN and GVC literature with a critique of the GPN and GVC analysis' failure to integrate the important issue of informality.

4.1.10 Informality

Informality is a key issue across a number of themes in my research as I consider the way forward for women in the global gemstone value chain. The GVCs have catalysed the creation and use of a huge "parallel workforce" (Barrientos, 2008, p. 982) of informal workers. This has significant impacts on the lives of workers as "the axis of informality cuts across a range of other axes of inequalities" (Phillips, 2011, p. 386) often touching the lives of women and youth (ILO, 2015). Yet, the GPN and GVC analyses fail to take account of this.

Informality is not typically considered in formal GVC and GPN analyses as the firm, with its power to lead and control, is central. This is a crucial oversight given the significance and core nature of the informal sector in the global economy. Phillips (2011) has argued for "a tighter integration of informality into how we deploy the study of GPNs" (p. 382). A related issue is the focus of GVC and GPN research on North–South flows in global trade "stretching from the

¹⁰ See, for example, the Gates' foundation guide by Chan (2010).

initial stages of production in the Global South to the end markets in the Global North” (Horner & Nadvi, 2018). As identified earlier by Goger et al. (2014), this is no longer in step with the reality of much global trade which occurs in South–South flows; for example, China is now Africa’s largest trading partner (Haugen, 2018).

Of particular interest for this research on gemstone supply chains is Phillips’s (2011) use of the term ‘interstitial informal economy’ defined as “informal activity that happens in or around formal business or state bureaucracy but is outside the ambit of formal regulation” (Harriss-White, 2010, p. 171). An example is Haugen’s (2018) study of petty commodity chains for fashion jewellery chains between China and Ghana. ‘Petty commodity chains’ refer to the production, trade, and distribution by small, unregistered businesses in which personal relations and informal infrastructure enable transactions (p. 38).

Haugen (2018) uses insights from two research traditions, the GVC and GPN approaches, and ethnographic studies of informal trans-border trade over 16 months between China and Ghana and Togo. She finds governance mechanisms proposed in the GVC quite unhelpful in this informal market place and concludes that such petty commodity chains are governed by ‘beholden value’, a “co-dependent relationship between business actors that is social, durable and in which power is situationally determined by actors” (p. 321). Such unregulated ‘beholden value’ would seem a prime opportunity for exploitation of the trader.

Concepts like the ‘interstitial informal economy’ and ‘beholden value’ are pertinent to our study of gemstone supply chains which often exist in and around the formal businesses of large gemstone traders and jewellery houses and where there is an increasing number of South–South flows. These terms will be equally important to remember in the following section in which I present a review of ASM literature.

In this section I have reviewed key concepts in the GVC and GPN literature with a special emphasis on gender and formalisation. I have discussed factors which continue to limit women’s equitable participation in the world of work and I have highlighted institutional work undertaken by civil society, companies (in the case of Finlays Horticulture), and individuals to make deep improvement in the lives of women. However, I conclude that although the opening up of employment to women in the fields, packing sheds, and factories that supply multinational value chains has provided access to work and money for many women, it has not generally created equitable conditions for women’s work.

4.2 Women in Artisanal and Small-scale Mining and the Gem and Jewellery Supply Chain

The following section reviews literature on women's involvement at selected points in the global supply chain for gemstones and jewellery including artisanal mining, trade, and value addition. Section 4.2 argues in line with Lahiri-Dutt (2008), that "for women to benefit from ASM it is first of all imperative to make their productive work more visible and to make their voices heard" (p. 235).

4.2.1 Women in Artisanal and Small-scale Mining: Marginalised or Invisible in a Growing Sector

Across Africa, it is estimated that women make up to 50 per cent of the informal mining sector with the percentage higher still in industrial minerals such as clay and salt (World Bank, 2019). Many are engaged in processing, for example, up to 90 per cent of gold processing is done by women in Burkina Faso and Mali, where women constitute up to 60 per cent of the ASM workforce (Eftimie et al., 2012; Gueye, 2001; Keita, 2001). In Ghana, most recent estimates suggest women make up to between 45 per cent and 75 per cent of the ASM workforce. A current weakness in ASM research is the lack of solid demographic data, which results in such statistics being founded on wide-ranging estimates (World Bank, 2019).

Across Africa, women's work is labour-intensive and yields the lowest economic returns (Armah, Boamah, Quansah, Obiri, & Luginaah, 2016). Yet, women are increasingly engaged in the sector because they find ways to provide for themselves and their families, and in some cases, gain some personal and economic freedom, status, and power (Labonne, 1996; Hilson, Hilson, Siwale, & Maconachie, 2018b; Hinton, 2016).

4.2.2 Brief Historical Overview of the Literature of Women in Artisanal and Small-scale Mining

The Harare Guidelines for the Development of Small/Medium-Scale Mining (1993), acknowledged the increasing number of women engaged in ASM (ILO, 1999). The possibility of ASM opening doors of opportunity for women was raised by Labonne at the World Conference on Women in Beijing in 1995. Labonne's subsequent paper (1996) is remarkably prescient in regarding ASM "as an equal playing field for everyone, men and women alike" (p. 119). Her recommendations remain relevant yet still unaddressed today, for example, the need for data on female participation and multi-stakeholder engagement with operators in the sector, district mining staff, and local government officials.

The landmark report on sustainable mining, *Breaking New Ground (2002) Mining, Minerals and Sustainable Development Project* (International Institute for Environment and Development [IIED], 2002) was accompanied by a report on ASM (Hentschel, Hruschka, & Priester, 2002), which included a wide range of thorough baseline studies of major ASM nations. It presented high rates of female participation, notably 50 per cent in Madagascar, and suggests women were participating at well beyond the survival end of ASM at this early stage. Heemskerk's (2003) detailed ethnographic study of the Maroon women engaged in artisanal gold mining (ASMG) in rural Suriname was one of the first academic studies of women in ASM. She argued that the appalling work conditions of Maroon women miners did not outweigh any gains in their quality of life. In the same year, feminist geographer Lahiri-Dutt (2003) published on women workers in the stone quarrying industry of the Rajmahal Traps region in India, noting that it was poorly compensated and involved hard labour which was under constant threat from moves to mechanise and formalise the quarry. Lahiri-Dutt's work continues to provide critical feminist insights into the oppressed and 'hidden' position of women miners and the feminisation of mining (Lahiri-Dutt, 2007, 2008, 2011, 2013). In 2014, she reframed the field by referring to peasant miners rather than artisanal miners (Lahiri-Dutt, 2014); this is a useful distinction for my work with rural women in Madagascar.

Detailed ethnographic field studies in Burkina Faso (Werthmann, 2009) and Birem in Ghana (Yakovleva, 2007) both underlined ASM female miners' agency and the new level of economic freedom it enables. It was feminist mining engineer Hinton's work (Hinton et al., 2003a) which opened up the whole field with her paper on gender and ASM and a separate study of the impacts on women of mercury in ASMG (Hinton, Veiga, & Beinhoff, 2003b). Hinton's work with Lahiri-Dutt and others created the community survey tool, *Gender dimensions of artisanal and small-scale mining: A Rapid Assessment Toolkit* (Eftimie et al., 2012). Across West Africa, Hilson's extensive work on ASM has provided many insights into the role of women and children (for example, Hilson, 2008) and has recently begun to consider the nascent entrepreneurial work of women in ASM (Hilson et al., 2018b).

In 2014, K. Jenkins's review of women in mining expressed concerns that the roles of women in ASM had not been analysed "from a gender and feminist perspective" (p. 331). In the five years since this review, a significant contribution to the African literature has come from research in the Great Lakes Region (GLR), in particular the DRC. A range of researchers working in the GLR have provided a new body of work exploring women's role in ASM from a gendered perspective (Kelly, King-Close, & Perks, 2014; Maclin, Kelly, Perks, Vinck, & Pham, 2017; Buss et al., 2017). The regional focus of the research is partly because of its high

levels of ASM¹¹ for both men and women, and women's involvement in the contentious artisanal mining of ASM gold and 3T¹² mining. ASM provides one of the few sources of livelihood that has endured through recent wars in the region (Buss, 2018; Kelly et al., 2014, p. 101). Much of this research was conducted against a backdrop of global campaigns associating the mining of minerals used in electronic devices with rape and other human rights abuses and there were strong calls for women to leave mining and engage in other work (Bashwira et al., 2014; Buss, 2018; Maclin et al., 2017). Careful qualitative studies have attempted to disprove the connection between gender-based violence and female miners. Researchers argue that such "a simplistic portrayal of women's victimization in mining towns suppresses discussion of their participation in non-conflict political and social processes". This participation is vital for "women to secure opportunities for long-term, substantive engagement in mining activities" (Kelly et al., 2014, p. 95). The researchers call for development agencies to stop removing women from mine work, rather to assist them to work legally and safely in their chosen career (Kelly et al., 2014).

Research findings illustrate the way women's work can become hostage to well meaning but often vested interests with negative impacts for women. An example is the Congolese government policies banning pregnant and breastfeeding women (and sometimes all women for good measure) from ASM in situations where this is their only livelihood (Bashwira et al., 2014). As Lahiri-Dutt (2013) notes, "populist and universalist conceptions of femininity and

¹¹ 500,000 to 2,000,000 Congolese are directly involved in the artisanal extraction of minerals, with artisanal mining making up the largest segment of the country's mining sector and accounting for approximately 90 per cent of the total mineral production (World Bank, 2008, in Bashwira, Cuvelier, Hilhorst, & van der Haar, 2014).

¹² Tin, tungsten, and tantalum are used in electronic devices. Concerns have been raised about the illegal mining of these materials and their association with armed conflict. The Great Lakes Region Protocol Against the Illegal Exploitation of Natural Resources is "a legal framework to curb the illegal exploitation of natural resources in the GLR and to take effective measures to prosecute and punish those responsible for such acts" (International Conference on the Great Lakes Region Protocol Against the Illegal Exploitation of Natural Resources, 30 November 2006). See also, special provisions for 'conflict minerals' in the Dodd Frank Act and OECD due diligence guidelines, <http://www.oecd.org/daf/inv/mne/OECD-Guidance-and-Dodd-Frank-Act.pdf>.

womanhood tend to normalise contested gender roles through protective legislation that operate against women's interests" (p. 224).

Buss et al. (2017), as part of a three year, mixed-method study in six artisanal mining sites across three countries (DRC, Rwanda, and Uganda),¹³ explored the gendered dynamics of ASM and some of the constraints and possibilities facing women's ASM livelihoods. They conclude that most women are disadvantaged and found at the survival end of the ASM "livelihood spectrum" (p. 26). Their report ends with a stark warning that gendered patterns of authority and structural inequality will make it difficult for women to benefit fully from moves to formalise the industry: "the conditions are set for women's effective exclusion from formalisation efforts that focus on establishing cooperatives and associations" (p. 50).

Failure to understand women in Artisanal and Small-scale Mining

Hilson's recent work has considered ASM and women in ASM from an entrepreneurial perspective (Hilson, Hilson, & Maconachie, 2018a). A second paper (Hilson et al., 2018b), examines the "female faces in the informal spaces" arguing, like Jenkins (2014) in her review of women in mining, that more research is needed to really understand the position of women in ASM and their roles and motivations. Women are more likely to be necessity rather than opportunity entrepreneurs (Hilson et al., 2018a). Yet, the current African Union policy embodied in the African Mining Vision (UNECA, 2009) for bolstering small-scale mining and formalising it, may create a platform for wealth creation that fails to recognise women's very difficult circumstances. This is reflected in a case study of grass-roots Zambian amethyst miners who fear any gains from the formalisation of mining will be captured by wealthy elites and leave them behind (Hilson et al., 2018b).

Promising approaches

McQuilken, Rickard, Treasure, Mihaylova, and Baxter (2017), working with the increasingly influential NGO, Women in Mining, strike a more optimistic note for women in ASM. Following two in-depth case studies of women in mining in Sierra Leone and Malawi, they recommend significant institutional reform: mining legislation to support women in the mining sector. They stipulate that this must be accompanied by approaches that join bottom-up and

¹³ Funded by Growth and Economic Opportunities for Women, the UK government department of International Development, William and Flora Hewlett Foundation and Canada's International Development Research Centre, 2014–2017.

top-down perspectives of both the formal rule-making and informal rules and power structures. They also recommend simplifying the process for establishing mining cooperatives and associations and the need to provide accessible guidance (pp. 5, 40). Finally, one of the most significant events in ASM history, the Mosi-oa-Tunya Declaration signed by over 500 ASM miners in Zambia in 2018, enshrined in its text that women play a vital role in ASM and that much greater efforts are needed to mainstream gender in ASM.

Even through this brief historical review, a significant theme is emerging. Despite considerable challenges, women in ASM have used their considerable agency to find opportunities to provide for themselves and their families and to find a level of economic and personal independence. A small but significant number of women have used this capital to upgrade themselves and become traders and mine owners.

The following sections of this review will begin with the women themselves, looking in depth at what the literature reveals about women's motivations for joining and *staying* in ASM in Africa. My research seeks to identify factors which mitigate for and against women's empowerment in ASM. In line with this, the remaining two sections are an examination of the way in which gender norms and institutions systematically disadvantage and limit women's activity followed by the opportunities for empowerment women have found in ASM. The final section will address the pressing issue of persistent inequality and formalisation.

4.2.3 Women's Motivations for Joining and Staying in Artisanal and Small-scale Mining in Africa

Push and pull factors

In analysing the literature about why women become involved in ASM, patterns of push and pull (Hilson, 2012) are clear. Women turn to ASM because of poverty and hardship, landlessness, or to accompany their families. The majority of these women are subsistence farmers who are pushed to either leave farming or to provide extra income to support their farming activities (Buss et al., 2017; Hilson, 2012; Werthmann, 2009; Yakovleva, 2007). Dreschler's (2001) study in Tanzania found a pattern of hardship was pushing women into ASM in order to find ways to support their families. This was brought on by the deterioration of subsistence farming with low prices of agricultural commodities, effects of droughts on and lack of farmlands, lack of alternative employment and trading commodities, and high birth rates and inflation. On the pull side, while there are some professional or wealthy women who buy their own mines or who become "supporters financing operations, and brokers trading and dealing in gold and diamonds" (McQuilken et al., 2017, p. 17), they are unusual. Another frame

for looking at the distinction between ‘push and pull’ activities would be in terms of the entrepreneurial logics used by these two groups of women. Push factors are more likely to be associated with survival entrepreneurs, those who operate in ‘destructive uncertainty’ in overcrowded market niches with negligent predatory government officials (Berner et al. 2012). Pull factors would be operating in the logic of growth entrepreneurs who are opportunity driven and while also operating in overcrowded market niches, are less vulnerable than survivalists (Berner et al. 2012).

Poverty driven

Women’s involvement in ASM is believed to be on the rise, driven by factors such as poverty, the out migration of skilled male miners, and the loss of family members to AIDS in continental Africa (Buxton, 2013; Dreschler, 2001). Rural women may be pushed to work alongside their families in ASM, others may be female heads of households. In both cases, they must bring in additional non-farm income (Yakovleva, 2007, pp. 31–32). Low levels of literacy also limit women’s opportunity in non-farm employment (Yakovleva, 2007, p. 38) but across Africa, ASM provides opportunities for such poor women in mining or service activities. Lack of credit may prevent women from taking up their preferred option as a petty trader and they are forced financially into stone crushing and panning (Yakovleva, 2007). Buss et al. (2017), in a careful study of poverty among ASM families in Central and East Africa, found that female-headed households avoided extreme food insecurity by undertaking many petty occupations such as cooking and services that men would not do but crucially these alone did not provide an escape from basic needs poverty. It was income from mining that made the difference. In Madagascar, a similar trend has been noted with rural people pushed to the sapphire fields because changing climate and drought mean they can no longer grow their own food (Canavesio, 2015; Lawson, 2018a).

4.2.4 Why Women Stay in Artisanal and Small-scale Mining

Understanding the factors that push women into ASM is not the whole story; a more critical dimension is added to the literature on women in ASM by including the reasons why women *stay* in mining. This in turn is influenced by their age, the life of the mine, the commodity itself, and of course their entitlement to mine in a particular area. While overwhelming poverty and need drive many women to take up ASM, their age and a desire for personal freedom are factors in the shifting opportunities and decisions made by them. Some younger women find opportunities to have economic and personal freedom. In Burkina Faso this could mean a woman’s husband treats her better than before or she is able to leave an unhappy marriage;

younger female miners invested in plots of land, often in their hometowns, on which they built houses they rent out (Werthmann, 2009).

Similarly, in Madagascar, Canavesio (2013) concluded that while women may be pushed by poverty and drought in the south to the sapphire fields further north, they stay there because they find an opportunity for personal freedom from the gender constraints of the patriarchal south. Older women are more likely to settle in the place they have migrated to and become traders, while men have more mobile patterns of migration and are more likely to pursue the next rush and strike (Canavesio, 2013; Lawson & Lahiri-Dutt, in press).

Finally, the commodity type and the woman's entitlement to mine will also impact patterns of vulnerability and their reasons for settling in an area. Just as in agriculture, where there are gendered norms around the cultivation of certain crops (Barrientos, 2013, 2019), so in mining women can be excluded from lucrative commodities such as in Sierra Leone where, until recently diamond mining, was a male preserve and women concentrated on gold. However, as the price of gold increased and diamond deposits extinguished, this has changed. "This combination is attracting men into gold mining and having the negative effect of marginalising women further by pushing them out of this vital livelihood activity" (McQuilken et al., 2017, p. 30).

The next section provides a thematic review of some of the constraints that women face in ASM, for example, in ownership, control, and access to assets and in the inequitable burden of unpaid and very low paid work.

4.2.5 Gendered Constraints on the Work of Women in Artisanal and Small-scale Mining

Reviewing African economic (for example, Goldstein & Udry, 2008) and feminist economic literature (for example, Bardasi & Wodon, 2010; Doss, 2013; Doss, Kovarik, Peterman, Quisumbing, & van Den Bold, 2015; Jacobs & Kes, 2015; Oduro & van Staveren, 2015), it is possible to isolate two groups of systemic and institutional constraints facing women in ASM which also control the work they do (Oduro & van Staveren, 2015). These are firstly lack of ownership, control, and access to finance and more valuable assets, and secondly the high burden of unpaid and poorly paid work. A discussion of these constraints will guide the following section's thematic review of ASM literature.

4.2.6 Women's Lack of Ownership, Control over Assets, Access to Finance and More Valuable Deposits

Two-thirds of sub-Saharan Africa's population live in rural areas (Hallward-Driemeier & Hassan, 2013) and rural women are engaged in ASM; women's land rights are thus critical in determining income opportunities. Hallward-Driemeier & Hassan's (2013) definitive work, *Empowering women: legal rights and economic opportunities in Africa*, points out:

Women's rights to their assets and income are central to their ability and incentive to operate and expand their businesses. As many people work in rural areas, informal, customary law and traditional forms of justice, rather than the formal legal system, may be more relevant. (p. 26)

In Kenya, for example, the traditional social system allows women access to, but no control over land, thus their overall production is low (Amutabi & Lutta-Mukhebi, 2001, in Lahiri-Dutt, 2008). In Madagascar, in the absence of broader gender equality principles, land tenure reform seems to have reinforced the primary ownership of land by male household heads at the expense of women's land rights (Widman, 2014). In Sierra Leone, even when a woman is the family head and owner of the land, approval of the male relative is required before any decisions can be made (McQuilken et al., 2017). As Whitehead & Tsikata (2003) explain, even where there is legislation giving women land rights, this is poorly enforced. Mine ownership, a crucial part of success in ASM (Huggins, Buss, & Rutherford, 2017) is thus beyond the reach of most women miners.

Informal institutions also carry gender inequity and restrict women's sustained access to assets. For example, a characteristic of relationships on ASM fields is temporary marriage ('gold marriages'; Bryceson, Jønsson, & Verbrugge, 2014) or *vadin saffira* (sapphire marriages) in Madagascar (Walsh, 2003; Lawson & Lahiri-Dutt, in press). Such relationships hold no legal status in relation to land rights or property and often exploit vulnerable women. Women typically enter into them to survive in mining situations with male miners agreeing to supply them with raw material to sieve in return for sex. These relationships rarely extend beyond the mine and women are left with nothing when the male miners move on. There are "close links between economic and sexual exploitation" in ASM sites (Kelly et al., 2014, p. 100) in which women navigate a "complex topography of sexual vulnerability where the lines between forced, coerced and transactional sex are blurred" (Kelly et al., 2014, p. 103; see also Mahy, 2011).

A critical role is also played by structural gender inequality. Buss et al. (2017) found that 70 per cent of women miners in their sample had no or little schooling compared with less than

50 per cent of men. If women cannot read, they are disadvantaged in all administrative and legal procedures for land permitting and licensing. Accessing finance for business development in ASM is difficult enough for women but almost impossible without literacy and numeracy. While banks may lend to agricultural projects, they are often unwilling to lend to 'risky' ASM projects and rarely consider mines as collateral (Spiegel, 2012a). Women may also be required to have a male relative's signature on official documents (Spiegel, 2012a).

Unequal access to valuable deposits and poorly paid work

Informal traditions and gender norms control where women can mine and the activities they undertake. Invariably, these traditions discriminate against women in ASM. An example is the tradition that discourages women from going underground; women do go underground but rarely when the commodity is of high value. This is said to be for traditional and cultural reasons with women bringing bad luck, immorality, or uncleanness (Buss et al., 2017). It is also because women are rarely given access to more lucrative first pickings of underground mines for high value commodities. In the sapphire mining areas of Madagascar, strong cultural traditions maintain such inequality with beliefs that larger stones are only for men and this norm is conveniently maintained both by miners and foreign sellers of gemstones.

Relegated to poorly paid processing

Similarly, discriminatory gender norms along with the institutional constraints mean that women in ASM are overwhelmingly engaged in processing of minerals more than in the extraction of ore. Processing is paid up to 60 per cent less than digging (Akabzaa & Darimani, 2001, in Eftimie et al., 2012) and even with processing women can be paid one-fifth that of the man working beside her (USAID, 2000, in Eftimie et al., 2012).

Women are also disadvantaged in access to machinery and technology by their lack of education and by cultural mores that consider women incapable of operating heavy equipment (Hinton, 2016; Lahiri-Dutt, 2008). Lack of equipment means lack of access to valuable resources, for example, geological mapping over five years in Central and West Africa reveals that women typically participate in extraction processes only when a deposit is relatively easily accessible with small amounts of overburden (Malpeli & Chirico, 2013).

4.2.7 Unequal and High Burden of Unpaid and Poorly Paid Work

Long established gendered institutions surround the division of labour in Africa with women and girls responsible for household chores and unpaid care work. This, combined with the lack

of basic infrastructure such as pipe-borne water and electricity (Wamboye & Seguino, 2015), means that women in ASM typically carry an unequal burden of domestic work as compared to male miners. Women work an additional five to eight hours (per day) more than men (Eftimie et al., 2012) in their unpaid roles but less hours in their paid role of actual mining (Buss et al., 2017, p. 35). They thus miss out on valuable work time and experience. This unrecognised, unequal, and high burden of work makes it difficult for women to advance past subsistence activities, to accumulate funds, to take part in meetings and training, and to do even small administrative tasks that would begin the process of the recognition of their paid work activity. Rarely would they have time and resources required to obtain mining permits or to legally register their business in offices far from home.

Health impacts for women and families

There are also health impacts of gendered labour patterns in mining which slowly but surely reduce women's capacity to work. For example, 'dig and wash', that is, digging, carrying, and washing sediment (Ferring & Hausermann, 2019) brings women into direct and frequent contact with sediment. This potentially exposes them to mercury, water-borne diseases and malaria which disproportionately affects women and babies, as well as back and neck strain from transporting heavy sacks of ore (Ferring & Hausermann, 2019). This has a double impact on women: not only are they more likely to be impacted, they will also be the primary caregivers of family in the case of disease and injury.

Signs of hope

A recent study in the gold-bearing western region of Ghana described women working in "human chains, each carrying large buckets of tailings on their heads, and panning and sluicing to recover particles of gold ... they haul ore with windlasses, sort and bag stones" (Armah et al., 2016, p. 465). But in amongst such descriptions, it is noted that women also provide services and buy gold. These are the seeds for empowering opportunities that can take women away from the back-breaking slog of processing ore.

4.2.8 Seeds of Change

In significant recent research in the GLR, Buss et al. (2017) found that while the division of work was clearly gendered, none of the job categories surveyed were exclusively for one sex, suggesting social rules are sometimes not followed or are challenged by some women. As mentioned earlier, women typically do not go underground, and while most excavation teams

are male dominated, in Uganda the researchers found several women-only excavation teams “who defied gendered norms about the types of work women could perform” (p. 47). These women preferred to work in all-women teams as they experienced no prejudice and harassment. Roughly equal number of men and women were found in trading the mineral or product but, lacking mobility, women’s trade was restricted to the mining site (p. 31). In some locations, women’s approach to the careful mining of residues and the trading in small stones is beginning to pay off as the number of large stones in some areas is diminishing. Work by Maconachie with diamond ASM in Sierra Leone (in Hilson et al., 2018b) revealed that women panning river sediments in the shadow of young male miners hunting for “winning stones” have actually “stumbled on a potentially huge untapped resource which could if marketed and planned efficiently” (p. 27) provide a future livelihood. Similarly, the small sapphires women trade in Madagascar have potential as sustainably sourced melee¹⁴ stones, (the small but brilliant accent stones, currently much sought after by jewellers).

Women in ASM demonstrate remarkable resilience and ingenuity and:

[A] growing body of evidence indicates that participation in ASM and its economies has provided many women with increased incomes, agency, voice and bargaining power, thereby challenging prevailing norms, beliefs and values. (Hinton, 2016, p. 3)

This is despite being frequently at the survival end of the sector’s hierarchy, carrying out subordinate work (Bashwira et al., 2014; Dreschler, 2001, p. 6). Women are demanding tools, equipment, training, and equal opportunities to access mines and to work together to upgrade themselves. They want to learn from neighbouring countries how to use rudimentary mining tools such as sluice boxes and trommels (Hinton, 2016).

Another example of resilience is in the African marketplace where women are selling gold (Bashwira et al., 2014), diamonds, and coloured gemstones (Hilson et al., 2018b). With great courage, a number of women are managing to overcome these stultifying norms and have

¹⁴ *Melee* is a term used by jewellers to refer to very small diamonds and precious stones which are used to highlight large stones or to create pavé pieces (where many small stones are set together as for example in a jewel encrusted flower). The GIA refers to melee as weighing less than 1/5 carat (ct). However, the exact size range of melee varies from country to country and from one segment of the trade to another. Melee can be as small as 0.001 ct (1/1000 of a carat). Source: Gemmological Institute of America (nd) What are melee diamonds? [GIA.edu](https://www.gia.edu/learn-more/what-are-melee-diamonds/)

achieved success as pit owners, cooperative leaders, prominent traders, and small enterprise owners. A Tanzanian woman miner can say:

I am now a woman miner in a class of my own comparable to the male miners, some of whom look at me with disapproval, because I have been able to match up to them, but I will push on. (African Mining Development Centre, 2015, p. 7)

These are the purposeful and reflexive words of an institutional entrepreneur leveraging “resources to create new institutions or transform existing ones” (Lawrence & Phillips, 2019, p. 209). The formalisation of the industry and the work of women miners must be approached carefully. It will have both negative and positive repercussions. There is potential to enhance women’s work but more likely is the possibility of excluding the most vulnerable actors.

4.3 Women Mineral Traders

Mining towns become homes to women and those who cannot find work easily elsewhere. The towns offer them a chance to belong and make some money to live on. Women’s work in trading the minerals they have mined or bought from other miners or traders is clearly a way forward for many women. Yet, there is very little in the literature about the roles women play at the trading end of the value chain of this kind of mining, irrespective of the commodity or context.

An exception is the work of Smith (2015) on Maasai tanzanite traders comparing income-earning activities at local markets with their market activities at the gemstone mining area of Merelani in Tanzania. Her work reveals an interesting tension between the “challenging and reification of the pastoral gender system differing according to a woman’s family and household status” (p. 305). In this section, I will piece together some of the passing references that are made to mineral traders in the literature and also reflect on the new kind of institutional work they are doing as in the case study in Box 2. It well illustrates the institutional work of disadvantaged women who use “small steps engaging in experimental projects, exploiting small advantages, challenging myths and cultural traditions” (Martí & Mair, 2009, p.101).

Box 2 Case Study of a Female Mineral Trader

Bi is a female miner in Tanzania, whose aunts, also miners, introduced her to dealers from the DRC. She travelled to the DRC and found many women trading not just one but many minerals, including silicon and titanium. Upon her return home, she realised that titanium

was being dumped with mine waste and she began mining it. Two years later, she had the resources to get a mining licence and is now the only titanium miner in the country.

Source: African Minerals Development Centre (2009).

Other examples are the *shashulere* (managers), women from the eastern DRC who play a vital role as intermediaries between artisanal miners and mineral buyers and who together successfully lobbied the local authorities to be able to use their digger's licence and operate as groups of three (Bashwira et al., 2014). However, the story also illustrates how well-intentioned moves to formalise the industry and make supply chains more 'transparent', by making everyone buy an expensive merchant's licence, can have negative consequences disadvantaging vulnerable groups and women.

Other associations of women traders have negotiated such governance gaps by creating mining-related proto-institutions that facilitate their participation in the benefits of resource extraction. This includes the well-established women's mining associations of Tanzania, Malawi, and Zambia (Hilson et al., 2018b). However, a criticism of these groups has been that they have lost touch with their grass-roots members and risk a degree of "elite capture" (Mercy Zulu, personal communication, 1/7/2018). This exact case is mentioned by Hilson and his co-authors (2018b) and the main message of their paper is:

Efforts aimed at the formalisation of trading should therefore take into account the positions of [vulnerable] women and seek to ensure they are empowered to secure meaningful licences and are protected from descending into joblessness and poverty. (p. 32)

Lack of mobility and finance are cited as reasons why female traders cannot progress. In Ghana, a small group of successful women who have ASM licences are themselves 'supporters' providing finance for other operations, and some are brokers trading and dealing in gold and diamonds (McQuilken et al., 2017). In Uganda, women solve the problem of finance by doing two jobs: working as mineral traders, usually of gold which is easy to sell and transport, while also working as teachers, local government workers, and small restaurant owners (Hinton, 2011). But these are options not available to most 'wash and dig' women.

Support from male relatives can be crucial in stepping up to become a trader in minerals in both Ghana and Sierra Leone (McQuilken et al., 2017). Clearly, women with support from male relatives and opportunities to take a second job have human capital that many more vulnerable female traders could only dream about. Just as with the women miners discussed earlier in the chapter, there is a clear intersection between gender and poverty compounding to

constrain the futures of women traders and their daughters (Djoudi et al., 2016; Kabeer, 2015). Hinton points out (2016) such poorer women and their daughters are held back by lack of negotiating of skills, knowledge of how to value minerals, and time deficit caused by juggling domestic duties and work. These barriers reflect a significant and long-lasting impact of the lack of opportunities for education mentioned earlier, but also the persistence of gender norms, which disadvantage women at many levels. These women are not likely to benefit from poorly thought through moves to formalisation.

4.4 Women as Cutters of Gemstones and Craftswomen

The cutting and polishing of gemstones requires equipment, the opportunity to learn, and many months of practice. It is still not well established in Africa. In East Africa, the Tanzania Development Vision 2025 enabled 47 women to receive intensive training in lapidary using Indian instructors and a 7-month lapidary skills course. However, they lack experts in the field and “value addition is still in its infancy stage” (*Rough Polished*, 2017, n.p.). Attempts to set up lapidary centres for women in Malawi and Ethiopia have not generally been successful as a result of lack of training, supply chain issues, and marketing (Harimalala, personal communication, 25/6/2019). In Madagascar, traditionally the skills of the lapidary and jewellery trade are passed from father to son but there are now a number of women who have their own business and who can cut and polish stones. One example is Julia who trained at the IGM and now works as a supervisor in a sapphire-processing workshop in the capital. Unfortunately, with the current economic climate she has not been able to buy the equipment she needs to set up her own business (Lawson & Harimalala, 2017).

In Pakistan, India, and Sri Lanka, global hubs for coloured gemstone beneficiation, value addition to gemstones through cutting, polishing, and jewellery-making is still a traditionally masculine activity. Sri Lanka has a small percentage of expert women cutters as can be seen in a video report (Lucas, Sammoon, Jayarajah, Tao, & Padua, 2014) and my research has uncovered a Sri Lankan female-owned lapidary workshop with more women than men cutters. In Pakistan, an exception is in the Swat Valley emerald fields where Michelou (2018) reports on a successful project for local women, usually the wives of miners who successfully cut and polish small emeralds for a European luxury firm that is prepared to pay a premium for stones cut by women, with a transparent supply chain.

In South East Asia, gender norms permit women to take a more active role. In Luc Yen in Vietnam, women take the lead in mining and notably in the commerce of highly prized bright

blue and pink spinels and also in creating gemstone ‘paintings’¹⁵ (Trivier, 2018). Many Thai women are involved in cutting and polishing gemstones both in companies and in home-based informal arrangements.

In Africa, goldsmiths have typically been male (for example, those making ceremonial adornment for Ashanti chiefs in Ghana). However, the Arts Faculty at the Kwame Nkrumah University of Science and Technology is now graduating a new generation of female goldsmiths and jewellers who are incorporating traditional designs (Fening, 2016).

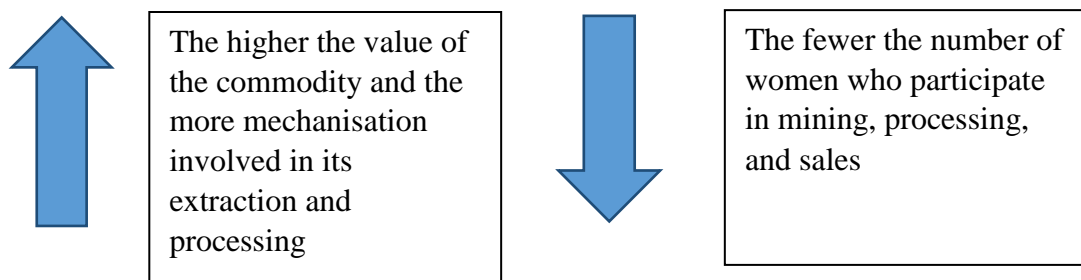
The final section looks back over the chapter and draws attention to a worrying trend in the calls by numerous global bodies and the African Minerals Development Centre to formalise ASM, and the possible impacts this will have on women miners and traders.

4.5 Persistent Inequality and Formalisation

A pervasive theme across this literature review has been the ubiquitous nature of inequity for women in the value chain, whether that be for women at the lowest rungs of flower farms and packing sheds or being excluded from the best mining strikes and left to reprocess tailings and crush ore by hand. As mechanisation is introduced, women can again be sidelined because of lack of education or gendered norms around women’s work. In the 3T mines of the DRC, Hinton (2016) notes a concerning trend: as ASM becomes more mechanised and formally organised, women’s participation tends to decrease. Instead of reducing women’s work and increasing incomes, women’s labour becomes redundant and they miss out to more powerful actors who own and control operations (Hinton, 2016, p. 3). In moves to upgrade ASM, mechanization and formalisation go hand in hand but their impacts for women and other marginalised groups must be carefully considered. A simple way of encapsulating the institutional disadvantage women face is given in Figure 7.

¹⁵ *Gem paintings* are created by crushing coloured gemstones to a fine powder and then creating a picture by sticking the powder onto glass. This art form is popular in Vietnam and Thailand (Trivier, 2018).

Figure 7 Women’s Participation in Mining as a Function of the Value of the Commodity and Amount of Mechanisation



Source: Based on the author’s experience and reading of the literature.

4.5.1 Ignoring Grass-roots Women’s Leadership

Given the institutional and structural disadvantage faced by poor women, it is rare in the current ASM field to find women in positions of respected leadership who have come up from the grass-roots. Ironically, women’s leadership and their work to change the institutional inequity women face may actually be damaged by current moves towards formalisation and transparency (Huggins et al. (2017). Privilege, power, and authority also intersect with gender in ways which can lead to the silencing of ordinary women and the promotion of an elite group of women who are related to those in power. The fear is that it will be these elites who will be given the lead in the formalisation process rather than the vast number of ordinary women at the mine face (Rutherford & Buss, 2019).

4.6 Formalisation

Institutional voids resulting from regulators’ disinterest in, and neglect of, this sector have created the informal space in which women in ASM work (Hilson et al., 2018b). Despite the disadvantages women face, there is significant value in this activity for women and there is some promising institutional entrepreneurship that is enabling some change to happen for women in the sector. Formalisation may crush such work.

The potential of the ASM sector to provide livelihoods for many millions across Africa has recently been recognised by international bodies (for example, the OECD and the World Bank) and donors but its informal nature is widely perceived as a weakness. There have been persistent calls to formalise the ASM sector from UNECA in the African Mining Vision, the OECD in its Due Diligence Guidance for Responsible Supply Chains of Minerals (OECD, 2016) and miners themselves in the Mosi oa Tunya Declaration (2018), which recognises that “ASM must be formalised, responsible and well governed” (p. v).

However, numerous scholars (Fisher, 2007; Rutherford & Buss, 2019; Spiegel, 2012b) have warned that formalisation may put many women at great risk of losing out on the small gains they have made from ASM. This is because those who are likely to control the process will not be grass-roots small-scale miners. Fisher (2007), in an early study of ASM formalisation in Tanzania, argued the process of formalisation “conceals social and power relations that perpetuate highly unequal access to resources” (p. 735). Spiegel (2012b) in his study of formalisation in Indonesia and Zimbabwe found the supposed “benefits of formalisation policies have been highly elusive in low-income rural communities, partly because small scale producers have been ostracised during regulatory reform processes and implementation decision making” (p. v). Speaking specifically about the fate of women and their empowerment in ASM during formalisation, Rutherford and Buss (2019) conclude:

Rarely are these calls for women’s inclusion situated in analyses of the actual power and authority relations shaping the gendered economic practices with which women engage in their mining work. (p. 63)

Tschakert (2009) has called for a rethinking of institutional approaches to ASM in Africa. It is hoped that some insights from institutional literature reviewed in Chapter 3, for example, Gómez et al.’s (2020) concept of “heterogeneity along the formal–informal continuum” (p. 182), may assist in developing an inclusive approach to the formalisation of ASM. This hope is expressed in my research questions.

More women are taking up work in the ASM sector in Africa than in any other part of the world (World Bank, 2019). The work in the mines and quarries is hard labour but the literature suggests that women are prepared to do it because the barriers to entry are low and the economic returns are much greater compared with other rural livelihood options. It provides income to support families and some economic empowerment, freedom, and a level of decision-making power (McQuilken et al., 2017, p. 17). When women who have been labourers become team leaders, mine managers, or traders it is a significant and positive change. There is a particular type of institutional work that takes small steps, exploiting small advantages, challenging myths, and cultural traditions (Martí & Mair, 2009). As has also been seen in the supply chains of other industries, women can also face significant and gendered disadvantage from entrenched gender norms which limit their access to education, land, finance, knowledge, and access to valuable minerals.

Chapter Summary

This review of the literature was in two parts. In the first part I began by outlining the difference between GPNs and GVCs and argued that they were both useful in analysing the opportunities and challenges faced by women working in the global supply chain and in ASM gemstone value chains. The GVC theory and literature provided an insight into the way value is captured at each node of the chain and the importance of governance in regulating and upgrading value chains. The GPN is a valuable tool for understanding the way in which various actors embed themselves and impact the chain. The GPN can also capture the transformation of a commodity as it passes through the different nodes of the chain as was seen in the use of GPNs to analyse ASM diamonds. The gendered nature of agricultural and horticultural value chains and production networks was discussed. It was concluded that gender inequity remains a problem in multinational GVCs and GPNs. In the second part of this review, I provided a snapshot of recent research into women's role in ASM considering the reasons why women start mining and the institutional challenges they face such as lack of access to education and the more valuable resources and their unpaid and underpaid work. The work of mineral traders and the particular opportunities and challenges they face were discussed. Formalisation poses a significant threat to the work of women miners and traders, if women are not carefully engaged in the process at all stages.

In this review I link gendered GVC and GPN research with the small-scale mining industry, probably for the first time in the literature. This review also informs my examination of gender in the sapphire value chain, from female miners and traders in Madagascar to women working further down the value chain in Thailand.

Chapter 5

Artisanal and Small-scale Mining of Sapphires in Madagascar: The Work Lives of Women Miners

Notes

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Introductory material about Madagascar, general details about the methodology and a review of literature about women in ASM have been removed, as this material is given in more detail in Chapter 1, 2 and 4 respectively.

Chapter Overview

In this chapter I present the findings of interviews of women who mine gemstones in southwest Madagascar. The research is set against the background of a mature sapphire industry that has largely failed to deliver to Madagascar any substantial opportunities for beneficiation or revenue from taxes, a fragile political system that has been unable to regulate the sector and extreme poverty caused in no small part by political and environmental shocks. Using work life histories (Giele & Elder, 1998), the research examines the miners' stories considering location in time, place, and climate (cultural background), linked lives, for example, family (social integration), human agency (individual goal orientation), and the timing of lives and climate change (strategic adaptation). Heuristic terms such as life transitions and trajectories are also used. I found a picture of diversity and agency emerging through the stories of these women who were engaged full time in sapphire mining and this was considered in the light of contemporary feminist critiques of some development activity. Ethnic background, gender relations, and the intersection between the women miners' lives, food insecurity, and changing climate emerged as significant themes.

5 Introduction

5.1 Women and Coloured Gemstone Mining

“Women? They help the men”¹⁶

In the scholarly publications which have investigated ASM in Madagascar (Canavesio, 2011, 2013; Cartier, 2012; Cook, 2012; Walsh, 2003, 2004, 2006, 2015) only Walsh (2003) and Canavesio (2011) consider women’s role in any detail. This is despite the fact that it is known that women are involved throughout the supply chain.

Canadian anthropologist Walsh’s (2003) ethnographic studies of ASM miners in northern Madagascar found that while young male miners often considered money earned from sapphires to be ‘hot’ money that had to be spent quickly on hedonistic pursuits, women miners tended to use ‘cool’ money which was destined for buying houses and cattle. The women he interviewed stated the only way to get ahead was “to put their money to work” (Walsh, 2003, p. 294) by spending their money wisely on long-term investments. A typical comment was that they were motivated to do this because men “have made them suffer” and that careful management of sapphire earnings would enable them to live independently of men. This resonates with Canavesio’s (2013) comments about the women of the south west that “migrate in order to become richer, but they also look for a new life in a society where gender inequalities are smaller than in the other parts of the country” (p. 1). This desire for emancipation also led some women to strategically marry foreign traders. Such mine marriages have also been noted in gold ASM communities (Bryceson et al., 2014) and in diamond-trade communities in Angola, where De Boeck comments that “mine marriages” tend to “serve an economic, purely utilitarian purpose in the short term, with the woman involved oftentimes for advantageous financial outcome” (in Walsh 2003, p. 302).

5.2 Methodology

As mentioned in Chapter 2, the methodology I used in this study aims to give women miners, who have rarely had their voices heard, an opportunity to tell their stories in their own words. As outline in Chapter 2 I used Life Course research methodology and heuristics elaborated by Giele and Elder (1998) to frame my interview questions and the themes for analysis.

¹⁶ This comment came from a prominent gemmologist working in the region.

5.2.1. Analysis of Data from the Interviews

I translated, transcribed, and analysed data from the interviews using content analysis. The categories used to analyse the data were both inductively derived, that is, allowed to emerge from the data in relation to the research question and scoping visits¹⁷ and deductively and iteratively determined based on insights from theory and literature principally Life Course Research (Giele & Elder, 1998). Further details of these thematic categories were given in Chapter 2. Heuristics to explain work life course were life transitions or turning points, trajectories, sequences, and life events (based on Giele & Elder, 1998).

5.4.3 Research Questions

Based on the literature and the theoretical and methodological orientation, the following research questions were constructed:

- What does the work life course of a woman in gemstone mining look like?
- Why do women take up ASM?
- How have they learned their skills?
- What have been turning points in their work life course?
- How do they manage family?
- Does it provide a reliable source of income?

Selection of subjects

I made two preliminary scoping visits to the Ilakaka and Sakaraha regions in 2014.

I interviewed twelve women working as miners of sapphires by the streams in the Ilakaka and Sakaraha region in the field with the assistance of my Malagasy research assistant. Photographs and participant observation were also used. For this study, I chose to concentrate on the interviews of women whose only livelihood was sapphire mining. Of the 12 women approached, 7 were working full time as miners and their interviews were selected for detailed analysis.

¹⁷ For example, a category related to climate change emerged. ASM and climate change are not often linked in the literature; however, in interviews a number of women spoke of changes in rain patterns which meant that they were no longer able to grow enough rice to feed their families and this was a factor in their decision to take up sapphire mining.

Semi-structured interviews

I used extended semi-structured interviews to elicit narratives of work life course history and participants were asked to comment on specific questions in relation to the research question for each case. For example:

Why did you start mining sapphires? How has it helped your life or made it harder?

5.3 The Work Life Stories of Women Sapphire Miners

5.3.1 *Alvine*

“The four of us work together.”

Alvine is seventeen-years-old, she is married, has a nine-month-old baby, and works in a group with her husband and cousins. She has been mining for three years across different mine sites in a 50 kilometre radius from Ilakaka and is now working in Bekily.

Before I came to mine I used to grow rice but because there was not enough rain and no harvest I started sapphire mining. Sometimes I find something, sometimes I don't. Some days I earn 10 to 20,000 Ar¹⁸ a day but often I earn nothing. I use everything I earn on my daily expenses.

The four of us work together (my husband and cousins), the boys dig, the girls sieve. I like doing this because I might find something. I can earn much more from sapphires than from gold.

I have a problem with my back. If I get sick I just keep working, I can't afford to see a doctor.

5.3.2 *Ravao*

“But unfortunately God hasn't given me yet.”

Ravao is twenty-years-old and she came from the South. She has been mining in this area at Bevilany for six months. She has one child who lives with her parents in Fort Dauphin. Her husband is away working on the new site.

My mother grows rice in Fort Dauphin but it did not provide enough to sustain us. My mother paid for my husband and I to come here to mine. I will keep mining until I have enough but I haven't found anything big yet. I chose sapphires because I don't know how to pan for gold. My brother taught me how

¹⁸ 3 to 6 USD.

to sieve for sapphires. I get a bit of money from sieving, sometimes 500 Ar¹⁹ a day but not every day. If I can't find anything, I go to bed with an empty stomach. If I find a big stone, I will buy a sewing machine and some gold jewellery. But unfortunately God hasn't given me yet.

5.3.3 *Harena*

"I mine because I want my children to have the same as others who have value, who have a better life."

Harena is twenty four and her family is from Androy West of Fort Dauphin. She is married with three children aged between five and two-and-a-half. She kept sieving until she was seven months pregnant. She went to her parents to have the baby and returned after two months, mining and breastfeeding alongside. She used to grow rice and manioc but with no rain, there was no harvest, so she took up mining. She had been at Bekily just one week but she had been mining for six years at places like Antsoha and Amboalano. She works for a 'boss' sometimes they earn 10,000 Ar²⁰ for three days for three people.

The children live with her husband who also mines sapphires about 10 kilometres away. They only see each other when they find a sapphire. When asked if it was safe for her to live alone on the rush site, she said, "I do it because of poverty. We are both looking for money."

She has a large sieve and she gives it to the men to use and then sorts the second wash. Her brother died when the earth caved in at the mine when he was underground.

I can live on sapphires. I prefer to mine sapphires rather than gold as they are more valuable and also because I do not know how to pan for gold. I can get more from them to buy gold jewellery and cattle. The cattle I have bought are with the family. I have found a few small stones and sold them to the businessmen. I will continue to mine until I find a large sapphire. I mine because I want my children to have the same as others who have value, who have a better life.

¹⁹ 16 cents.

²⁰ 3 USD.

5.3.4 *Titae*

“They belong to me. I bought them with my own money.”

She comes originally from Amboasary, 60 kilometres from Fort Dauphin. She does not have any children and has been mining for eight years at many locations around Ilakaka but she has decided to stay in Bevilany on the Maninday River as she no longer wishes to move. Her husband works with her. He digs and brings gravel down for her to sieve. They have found one good stone so far and have bought four cattle with it. The money they earn is for both of them. Her husband shares his find with her.

It’s hard. I only do it because I am poor. If I can’t find anything I sleep hungry. I will keep mining until God gives us enough. Then I will do many things: buy gold jewellery, dresses, and cattle. The sieve costs 8000 Ar²¹ and the spade 3,000 Ar.²² They belong to me. I bought them with my own money. It is me who will work using them and make money from them.

5.3.5 *Vola Julienne*

“I want a sapphire for myself.”

She is forty six and also works at Bevilany on the Maninday River. She comes from Ilakaka where her parents had a hotel. She lived there from 1980 and was there when the sapphire boom started. She started mining then. She has moved around at least five mine sites around Ilakaka and Sakaraha. She is married with two children. One is finishing school, the other is married.

I mine because I am looking for money. I found a sapphire in 2004, I built a house and bought cattle and paid for my children’s schooling.

I want a sapphire for myself. The father of my children is dead, this husband is their stepfather, and I need my own money to look after them. I will continue mining until I find something. I want to build another house to rent out for my old age.

²¹ 2.60 USD

²² 1 USD

5.3.6 Golden Smile

“I have been mining for a long time.”

Golden Smile is forty six and she works with her two sons who mine underground. She lost one of her sons and used the sapphire money to bury him.

She sieves by the river. At 11 o’clock she goes up to where her sons are working and collects gravel to take and sieve by the river. It is a 200 metre steep walk on slippery ground and hard to keep balance. She walks barefoot.. She has been mining for eight or nine years. She has worked on at least five mine sites around Ilakaka and Sakaraha. She lives from sapphire mining and is bringing up her granddaughter.

Sapphire mining is an activity for men. I do it because I don’t have a husband.

No one taught me but I watched my sons. I watched, I watched, I watched and then I did it. I have found some stones and bought food and medical treatment.

I have been mining for a long time. If God wants to tell me to stop, I will do it.

As you see I cannot dig but I have no money. No one else gives us money. If I had money I would start a second-hand clothes business. I don’t feel good but if

I find some sapphires, I’ll buy some jewellery.

5.3.7 Oly

“We want to buy a gun and a car.”

Oly is twenty- five and has four children under four. One child has died. Oly is a Bara woman, one of the main ethnic groups of the region that has worked traditionally with cattle and sapphire. She works with her husband, he digs for sapphire-bearing gravel and stones and she sieves by the river, either the gravel from her husband or gravel she digs from the river bed. They mine all year round but during the wet season they also grow rice.

We have two rice crops a year. When the rice is ready we harvest and stock and then go back to sapphires. We get twenty big bags each year. We store it and resell it, when the prices go up, we buy cattle. I don’t want my kids to go to school, I want them to work with me. We want to buy a gun and a car.

5.4 Discussion

Women are like a thread passed through the eye of a needle

- proverb by the Masikoro, the local ethnic group.

I have chosen to frame this discussion of women miners with the Masikoro proverb which reflects the position of these women who, against enormous odds, are seeking “to make change happen for better” (Cornwall & Edwards, 2014, p. 2). Each woman speaks of using sapphire

money to do something for herself, to help her children, to buy a business, or personal items. Their spades and sieves are their own. There is a sense of agency and some pride in what they have achieved. However, the opportunities are very constrained by the eye of the needle of these women's circumstances and society, where structurally and culturally they often have little power. ASM mine sites are typically portrayed as masculine frontiers where women 'help the men'. By talking to these women and hearing their life stories, it is noticeable that these women do not identify themselves as just 'helping men'; some are working alongside men in work which may be identified as 'men's work', but they have very clear and diverse work life trajectories. As Canavesio (2013) has argued, the rush sites of this region offer opportunities for women to find economic and personal emancipation.

Andrea Cornwall's (2003) work has been significant here as she has investigated the failure of development projects, even those which claim to be using participatory approaches to listen to and incorporate women's voices. In her comprehensive review and critique of gender and participatory development, she argues:

[W]hat is needed is strategies and tactics that take account of the power effects of difference, combining advocacy to lever open spaces for voice with processes that enable people to recognise and use their agency. (p. 139)

Despite extremely difficult circumstances, there is no way these women can be constrained into some kind of "average Third World Woman" leading an "essentially truncated life" (Mohanty, 1988, p. 56). Mohanty further argued that many well-meaning feminist development researchers emphasize the needs of the Third World woman and fail to analyse the work they do both in the formal and informal sectors. The analysis in the following section attempts to address this gap.

5.6.1 Location in Time, Place, and Climate

The women in this study find themselves on the edge of a sapphire mining boom that began some 18 years ago and is strongly controlled by foreign buyers of valuable stones. The buyers and those with control are predominantly male. The easy to find stones, or 'in the grass stones', as they are called in Malagasy, have long gone and younger, more mobile miners have moved to other areas. These women have not progressed to become stone traders nor are there any opportunities for beneficiation or formal employment. They aspire to buy cattle, businesses, and property and to have some control of their circumstances. The ethnicity of the woman miner also emerged as a factor in relation to her motivation for mining. Madagascar has 18 different ethnic groups and, as is evoked in the proverb, many are oppressive to women. In

particular, Bara women like Oly have few rights in relation to cattle and landownership. Her comments seem unlike the others. She alone does not want to send her children to school, and instead of wanting to buy jewellery or a sewing machine, she wants to buy a car and a gun.

5.6.2 Turning Points and Strategic Adaptation

A turning point in the work life trajectory of all the miners, the decision to start sapphire mining, was the persistence of poverty and drought. Changing climate patterns seem to be a significant catalyst to take up mining. Three women had moved from the south and southeast because the rains there had failed and they were no longer able to support the family by growing rice and manioc. This region of the south is dry and particularly prone to changing climate; food insecurity is extreme and sending family members to find work elsewhere is one strategic approach to survival (Harvey et al., 2014) and is an example of Giele and Elder's (1998) strategic adaptation.

Strategic adaptation is also seen in the way they have all moved across many different sites when new sapphires were discovered. The older women have moved across at least five different sites. They live in makeshift tents with their only tools being a spade and a sieve. They all hoped to move on from mining and wanted to buy cattle, a potent symbol of wealth in Malagasy rural life. Some hoped to establish other businesses such as second-hand clothes stalls, dressmaking, or farming. They hoped for better lives for their children. Harena's comment sums it up: "I want them to have the same as others who have value, who have a better life."

5.6.3 Linked Lives (Social Integration)

Strong factors influencing change in work life trajectories are social and personal factors, that is, the linking of other lives with our work decisions. In the lives of these female miners, there are a complex array of personal relationships at play in their work life decisions. A number have very young children and have given birth at a young age. In our sample only Titae, Alivne, and Oly are living and working alongside their partners and Golden Smile does not have a partner but works with her sons. In the other cases, the husband and wife are hedging their bets by each working on a different site and only seeing each other when they find a stone. Vola Julienne is using sapphire mining in a very strategic way to manage complex family issues, she needs to provide for her children from her first marriage as her second husband will not and also to provide for her retirement.

Oly's case is slightly different. She was working an area close to the original sapphire town of Ilakaka, not one of the more chaotic rush sites where the other women were found. Despite the great hardship of losing a child she and her young family are moving ahead using a combination of mining, rice growing, and cattle. She is a Bara woman, the cattle-based ethnic group of the southwest grasslands and the original owners of the sapphire country around Ilakaka. They have been particularly impacted by the breakdown in law and order and ruthless cattle rustlers. This is reflected in her wish to buy a gun and transport. She is also very protective of her children and does not wish them to go to school but wants them to work with the family.

5.6.4 Human Agency (*Individual Goal Orientation*)

All women display great courage and human agency to provide for themselves and their families. Women in this part of Madagascar are not in a strong position “especially the Bara women: they don't have a place” (personal interview, Mayor of Ambrinany and local doctor, February 2014).

It has been remarked that artisanal mining provides an opportunity for women to have their own money, to use money more wisely than some of the male miners, and to gain some independence in a system which is quite oppressive for women (Canavesio, 2013; Walsh, 2003). This is evident in some of the comments of the more mature women like Vola Julienne and Harena who asserted quite forcibly in these relatively short interviews that mining could support them: ‘I can live on sapphires’; ‘I want a sapphire for myself, the children of the father are dead, I need my own money to look after them’.

Likewise, Titae is proud that she has her own tools and of the personal power that they give her:

‘The sieve cost 8000 Ar and the spade 3,000 Ar. They belong to me, I bought them with my own money as it is me who will work using them and make money from them’.

Age and time spent in mining are also significant. The younger women had begun mining in their mid-teens and were working as a family team with male family members collecting sapphire bearing gravel from underground.

Older women like Vola Julienne are a little different. She had found a large stone earlier in her life and this had permitted her to buy a home and cattle. However, she had married again and needed to make money to look after children from her first marriage and also to provide for herself in retirement.

Mining of sapphire was both a means of survival in extremely precarious circumstances—a number of women spoke of going to bed hungry if they didn't find a stone—but also a means

to finance other livelihoods in the future: to buy a sewing machine or to sell second-hand clothes. Almost all women made reference to God, a typical comment being, “I will keep mining until God gives us enough.”

Concluding Comments and Chapter Summary

Cornwall (2003) investigated the failure of development projects to listen to and incorporate women’s voices. In her comprehensive review and critique of gender and participatory development, she argues:

[W]hat is needed is strategies and tactics that take account of the power effects of difference, combining advocacy to lever open spaces for voice with processes that enable people to recognise and use their agency. (p. 139)

Development agencies are returning to Madagascar after the four years of political instability and there is interest in development activities for women in ASM. They would do well to heed this advice.

Cornwall and Edwards’s (2014) most recent work is a response to such critiques. It aims to explore in a more holistic way how women in different cultures experience change and empowerment in their lives, and in the spirit of true feminist research, it seeks to discover “hidden pathways, the otherwise invisible routes that women travel on to empowerment” (2014, p. ix).

Using the work life course framework (Giele & Elder, 1998) provides an in-depth and respectful basis from which to better understand the lives of women sapphire miners and their ‘hidden pathways’ to empowerment. The diverse motivations of women and their individual agency it reveals are striking.

A predominant theme which emerges is of rural women from different ethnic groups, often from the south of Madagascar, taking up artisanal mining in response to deepening rural poverty and food insufficiency caused by the failure of crops and changing climate. This is particularly significant in Madagascar where the impacts of changing climate on small farmers are expected to be severe and where preservation of its unique biodiversity is crucial. The issue of climate change and ASM has not been widely explored in the literature. The intersection on the pathway between women miners, food insecurity, and changing climate in this research warrants further investigation. However, as is suggested by this research and a recent review (Djouidi et al., 2016), further research must move beyond male–female dichotomies of impacts and the victimisation of women and provide critical intersectional assessment that includes the impacts of the political economy, power dynamics, and social institutions on women’s

opportunities for empowerment. This kind of research will highlight women’s agency as they adapt to climate change but also as they find their own pathways to personal and economic empowerment.

The next chapter contains the following publication:

Lawson, L., & Lahiri-Dutt, K. (2020). Women sapphire traders in Madagascar: Challenges and opportunities for empowerment. *The Extractive Industries and Society*, 7(2), 405-411.

Reproduced here as Chapter 6.

Contributor	Statement of Contribution
Author Lynda Lawson (Candidate)	Conceived, wrote, and edited the paper (80%)
Author Kuntala Lahiri-Dutt	Wrote and edited the paper (20%)

Chapter 6

Women Sapphire Traders in Madagascar: Challenges and Opportunities for Empowerment

Notes

This chapter, co-authored with K. Lahiri-Dutt, and has been published by *The Extractive Industries and Society Journal* and may be cited as:

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Only stylistic changes have been made to maintain consistency with the remaining chapters in the thesis.

Chapter overview

Recent literature has seen a growing appreciation of livelihoods based on informal ASM that supplement women's primary reproductive roles, leaving a gap in the parts women play at the trading end of the value chain of ASM. In this chapter we attempt to fill this void by adding to the growing body of research on gendered trade in ASM. It focuses on women traders and the complex challenges and opportunities they face while carrying out this informal trade. The chapter is based on extensive field research, interviews, and focus group discussions of women sapphire traders in southwest Madagascar, colloquially known as 'ladies in hats', who work in clan-based associations described as nascent proto-institutions. We draw upon institutional and entrepreneurial theory to understand their position in the sapphire value chain, and illuminates how women's status could be strengthened to create the foundation for a vibrant EE. The chapter also asks how women traders can be empowered in view of the current opportunities and challenges, and suggests that the proto-institutions could form the basis of a cooperative or a small company if regulatory and financial settings for these women can be improved and if there is an opportunity for them to formalise their trade.

6.1 Introduction

6.1.1 Women in the Marketplace in African Artisanal and Small-scale Mining

Women's labour contribution in artisanal mining is recognised in the production and processing of minerals, metals, and gemstones as well as in a range of ancillary activities. Currently, there is a growing appreciation and understanding of livelihoods based on informal

ASM that supplements women's primary reproductive roles of ensuring household food security and caring for children and the elderly. In ASM communities throughout the world, women and men have different social roles, rights, and opportunities, play different roles in production and labour organisations, and are also differently affected by environmental changes. Women and men also have different access to land and non-land inputs, and technical training (Huesca, 2013; Lahiri-Dutt, 2008; Moretti, 2006). Women are represented more heavily in lower value industrial minerals. They suffer from gender inequities in access to land and other productive resources, have little or no control over the incomes earned, and are subject to gender-based violence (Bashwira et al., 2014; Collins & Lawson, 2014; Huggins et al., 2017; Lahiri-Dutt, 2007; Rustad, Østby, & Nordås, 2016; Tallichet et al., 2003).

The growing body of research on gender roles in ASM has so far been surprisingly silent on the roles women play at the trading end of the value chain of this kind of mining, irrespective of the commodity or context. This chapter fills the glaring omission of women in ASM, focusing on the complex challenges and opportunities for the empowerment of women, with particular focus on women working across the Malagasy sapphire value chain in southwest Madagascar (Lawson, 2018a). It analyses some of the most disadvantaged actors in the early part of the sapphire value chain, the women sapphire traders.

The barely legitimate informal sapphire trade exists on the margins of mines and mining towns. It is a relief from the exhausting work of mining and sieving, and is a vital source of income for women and their families. Examining the role of women with very few resources, from institutional and entrepreneurial research perspectives, working as gemstone traders in one of the world's least developed countries, offers an opportunity to question whether these women can be seen as 'proto-entrepreneurs' in a 'proto-entrepreneurial' context. It also provides an opportunity to critique what Jenkins (2014) describes as the "gendered dynamics and power relations at work" (p. 32) in the extractive industries, and brings to the fore how the process of feminization operates on the ground (Lahiri-Dutt, 2015).

To analyse this situation and the achievement of sapphire trading women, we draw upon the study by Martí and Mair (2009) that challenges scholars to focus on the work done by actors with limited power and resources in the developing world. It bridges institutional and entrepreneurship theory (Mair & Martí, 2009), allowing an analysis of the gendered trade in ASM. Scholars and experts have noted the 'female face' of much of the African trade (Gitonga, n.d.), with female informal cross-border traders as key economic actors, who suffer from invisibility, stigmatization, violence, harassment, poor working conditions, and lack of recognition of their economic contribution. These happen because their involvement in trade

is concentrated in the informal economy. Brentan (n.d.) and Kiteme (1992) note the role played by women traders in the African economy thus:

[T]he female traders not only supplement the food supply ... they also provide assistance and financial benefits for numerous community causes such as education of children, family clothing, salaried household and farm employment, acquisition of cattle, improvement of family housing, development projects, community health, adult education, direct and indirect payment of government taxes, and improvements in transportation and general infrastructures. (Kiteme, 1992, p. 136)

In the 1990s, around 80 per cent of the female working-age population was employed in trading (Clark, 2010). Since then, women's participation in informal trade has intensified in African countries. In Ghana, for example, Kwami (2016) observed that “[a]lthough men are present in the Ghanaian market place, women have historically dominated this space.... Ghanaian market women continue to dominate the informal sector today” (p. 149). Notably, as much as 70 per cent of cross-border trade in sub-Saharan Africa is carried out by women (UNCTAD, 2013).

6.1.2 Informality

Following these observations, attitudes to the informal sector in general and to informal trade in particular, have altered in recent years. Sparks and Barnett (2010) argue that the informal sector in Africa is no longer a marginalised ‘survival’ sector that absorbs excess labour but it is a vibrant, entrepreneurial part of the economy that creates new jobs stimulates economic growth and offers better opportunities for equity. The marketplace that women enter is not only informal but is also characterised by extraordinary gender inequities. Indeed, as Seligman (2001) notes, “market women experience remarkable stress trying to juggle their multiple roles and relationships as economic, political and cultural mediators” of radical social–economic–political changes that are sweeping through the African continent. “In this brave world, market women are among the ‘managers of contradiction’, a fact that has not been lost on government and international lending agencies” (pp. 21, 23). Not all women, however, are treated at par by lawmakers. Bowles (2013) notes the incredible success of hypermobilised Ghanaian women with affluent economic status and social ties stabilised by educational experiences abroad. They have done exceedingly well within the overall scenario, raising questions as to whether such examples remain unparalleled among their peers elsewhere in Africa and for women without such social status and connections.

6.2 The Gemstone Trade

Within the growing global production and trade in gemstones, Madagascar plays a significant but undervalued role; it is in fact the world's leading producer of sapphire (Shigley et al., 2010). The gemstone industry is truly global: the stones, originating in one place, cover significant distances to reach places where they are cut, polished, and set into jewellery, and finally sold around the world. For example, Colombia and Zambia are the major source of emerald, Myanmar and Mozambique for ruby, whereas Sri Lanka, Australia, Tanzania, and Madagascar are the primary sources for sapphire. Sometimes, the gemstones change hands many times to reach countries such as Thailand and India, where they are cut and polished for the consumers across the world.

The primary centres for processed gemstones are located in Bangkok, Hong Kong, Europe, and the USA, and are used by jewellery and the watch industries. Shortell and Irwin (2017) observe that this global industry is characterised by widespread illegal activity, low revenue collection, minimal value addition, and weak oversight in the countries where the gemstones originate. Gemstones are mined in areas that are remote, have weak state presence, and poor infrastructure, and the inability of the state to exercise law and order makes it almost impossible to control the actors, adding an element of 'ungovernability' to the local context (Lahiri-Dutt & Brown, 2017). An anthropological perspective on tanzanite by Donahue (2018) shows that the 'value' created in this complex and extended chain is as much a product of modern consumerism and related brand-making as the natural value of these commodities. Roy Chowdhury and Lahiri-Dutt (2016) have argued that the *khonds*, the indigenous people of Kalahandi in the Indian state of Odisha who mine coloured gemstones, have not benefitted substantially from the rapid expansion of mining in the region, although the rate of outmigration has slackened temporarily.

6.3 Sapphires in Madagascar

Interestingly, Madagascar does not have institutions, either private or public, that can robustly control and administer the trade in sapphire. Therefore, much of the gemstones trade remains in the informal sector where effective regulation of the industry is loose and the collection of revenue through taxes and royalties is poor (Randriaarson, 2017). The informality is evident in the length and breadth of the industry, starting from the way production relations in mining are organised to the way the gemstones are traded. Most mining of gemstones occurs in the informal ASM sector, with many stones being shipped out of the country with no value addition. This poses a serious problem for Madagascar. Some experts believe that institutions,

as “the rules of the game in a society or, more formally, the humanly devised constraints that shape human interaction” (North, 1990, p. 3), are crucial for resource extraction to generate capital for its actors to benefit from. In the context of resource extraction, formal institutions could be legal frameworks governing regulation, landownership, and leases, whereas informal institutions ‘do the thinking’ by shaping the local norms and behaviours and customs, defining not only the rules of the game but also its players (Mair & Martí, 2009).

The first major deposits of fine sapphire to be mined and exported from Madagascar were from Andranondambo in the southeast in 1992. This sparked an influx of foreign buyers and led to the setting up of sapphire towns in Ambondromifehy in the north (in 1993) and Ilakaka, now the most celebrated of Madagascar’s sapphire rush towns, and Sakaraha in the southwest (in 1998). In a matter of a few months, with the arrival of 100,000 miners, Ilakaka transformed from a sleepy agro-pastoral town to a thriving one. Sakaraha, an established rural town 81 kilometres to the south, saw a similar transformation with the arrival of miners and foreign traders. Miners came from all over the country, principally from Androy in the extreme south, where sapphire had been mined in the past and where changing climate, drought, food insecurity, and cattle theft created a strong impetus for migration (Lawson, 2018a). While both men and women participated in the great rush, Canavesio (2013) argues that women seemed more motivated because, apart from financial gain, they also found opportunities where their roles were no longer restricted by a deeply patriarchal culture.

Vatomandry and Andilamena in the east of the country saw sapphire rushes in 2000 and 2001, respectively (Cartier, 2009). In 2016, the discovery of large, highly saturated blue and pinkish orange sapphire in Bemainty, a rainforest area in the northeast, attracted miners from across the country in large numbers and traders, mostly from Sri Lanka, thereby raising concerns about forest incursion (Pardieu et al., 2017). Towns like Ilakaka and Sakaraha are now established hubs in their region and women traders find their place selling the smaller stones either directly in the market or through middlemen. While there is some mechanised mining in the formal sector, the majority of sapphire mining and trading conducted by the Malagasy remains artisanal and well within the informal sector. To date, the government has failed to put in place a system that will enable miners and traders to work in the formal sector. Donors have paid for Bureau Administratif des Mines (mines offices designed to issue permits and create pathways to formalisation) to be built in both Ilakaka and more recently Sakaraha; however, neither have ever functioned due to a lack of professional staff willing to work there or perhaps political will or capacity to effectively regulate the sector. The best stones continue to leave the

country without formal paperwork and are cut and polished in centres in Sri Lanka and Bangkok (GIT, interview, 18/1/2018).

6.4 Women and Sapphires in Madagascar

As mentioned in Chapter I, the status of women in Madagascar is not good and the reality of women, particularly in the rural areas under study, is severe. While national laws seem to protect women's rights, in practice poor levels of education among women and traditional law mean they have no hope of reclaiming their rights. The law only protects the rights of women, for example, the right to alimony and rights to children, in 'legal' not traditional marriages, yet these 'legal' unions represent only 4 out of 10 unions. Legally, only the husband can head the household even though there are many female-headed households and single mothers (at least 20 per cent of homes according to Rabenoro, 2005). Inheritance laws, both legal and traditional, tend to disinherit women and exclude them from equally accessing, owning, and managing land in the country (SIGI, 2019). Gender-based and domestic violence are not well defined by law leading to an under-reporting of these crimes as well as a level of social acceptance. Despite the legal age of marriage being raised to eighteen in 2007 child marriage is widespread, including forced marriages of girls as young as ten. Sexual and domestic servitude can be associated with such practices and levels of child prostitution in Madagascar are high.

6.5 Women as Informal Entrepreneurs

6.5.1 Informality

Madagascar's pre-eminence in sapphire production and trade needs to be considered within the informal nature of the country's economy. Levels of informal work are very high across the board at 89 per cent, but for women the levels are even higher at 93 per cent (Women in Informal Employment: Globalizing and Organising [WIEGO], 2012). These two facts explain why the sapphire trade is informal and why there are more women within this informal trade. The question, therefore, is whether women's involvement in trade itself can empower them. Dana, Ratten, and Honyenuga (2018) argue that female entrepreneurship in Africa offers an interesting and vital opportunity to consider women's autonomy and empowerment. However, African women entrepreneurs are currently concentrated in the informal sector, where they are driven by necessity and reasons of poverty alleviation, and in the case of Madagascar drought and climate change (Canavesio, 2013; Lawson, 2018a), rather than opportunity or economic empowerment (Spring & Rutashobya, 2014).

6.5.2 Women Entrepreneurs

To be of value, more nuanced information is needed about the barriers and enablers to African women's entrepreneurship. For example, women also face significant barriers institutionally with unequal rules for women and men in taxation, employment, and property use found in 28 nations in sub-Saharan Africa (*Africa Development Report* cited in Hilson et al., 2018b). Two recent reviews of gender and enterprise development in sub-Saharan Africa by the World Bank provide further valuable facts (Campos & Gassier, 2017; Chakravarty, Das, & Vaillant, 2017) but little theoretical framing. They found that although female participation in entrepreneurial activity is higher in sub-Saharan Africa than in any other region, women's businesses, unlike men's, significantly underperform and a higher proportion of women employees, especially the younger ones, work in vulnerable conditions. Campos and Gassier (2017) found that just two interventions consistently impacted the business outcomes of female-owned firms: providing access to savings accounts and in-kind/large grants. There was no consistent impact from microfinance, cash grants for small-scale entrepreneurs, and traditional managerial training. By contrast, a significant study in Togo found that psychology-based training in entrepreneurship, that emphasised personal initiative, entrepreneurial self-efficacy and passion, had a positive impact on female entrepreneurs' business success. Campos et al. (2017) define personal initiative as:

[A] self-starting, future-oriented, and persistent proactive mind set because it involves looking for ways to differentiate one's business from others, anticipate problems, better overcome setbacks, and foster better planning for opportunities and long-term preparation. (p. 1)

6.5.3 Barriers to Empowerment

Women entrepreneurs generally experience the impact of institutional barriers to successful participation in the markets. These can be both formal, such as lack of education and resources that make it difficult for them to obtain mining and commercial permits, and collateral for finance, and informal, such as cultural and religious constraints. Mair and Martí (2009), in the context of their research with an NGO in Bangladesh, note that the lack of property rights and autonomy were the most significant factors impeding women's capacity to participate in markets. Gender is thus a decisive factor in formal and informal institutions, and in the creation and control of institutional voids. These voids are situations where institutional arrangements that support markets are weak, absent, underdeveloped, or ineffective in doing their job, and can be of three specific categories: voids that cripple market development, voids that hinder

market functioning, and voids that impede market participation (Mair & Martí, 2009, p. 422). For some women, these voids provide opportunities for entrepreneurship to succeed within these constraints by adapting and using strategies such as bricolage, “making do with what is to hand” (Baker & Nelson, 2005, p. 329). In the context of sapphire mining and the trade industry of Madagascar, these voids have indeed offered some space to innovatively manoeuvre the various gender-based restrictions and handicaps.

6.5.4 Women’s Lives and Entrepreneurship

An example can be seen in the artisanal mining communities where different kinds of marriage institutions shape women’s behaviour and opportunities. Sometimes, single women may be forced to enter into temporary transactional ‘gold marriages’ in Tanzania (Bryceson et al., 2014). In Madagascar, ‘sapphire marriages’, that is, forming a relationship with a male miner and trading sexual favours to gain access to mining opportunities, reflect similar strategies adopted by women. Those women who are in ‘traditional marriages’ do not fare better in their efforts to make them last longer or gain stability; the married women often must give all their finds to their husbands or fathers-in-law, who decide how the proceeds should be spent (Lawson, 2018a). Informal institutions control access to resources, for example, in Madagascar it is rare to find women underground where the best stones are found, instead they are relegated to sieving the tailings aptly called ‘pooh mining’ in Malagasy. Women are said to be too weak to go underground, yet they find themselves in water the whole day with heavy-framed sieves.

6.5.5 Proto-institutions

Women across Africa have also negotiated such governance gaps by creating mining-related proto-institutions that facilitate their participation in the benefits of resource extraction as, for example, in the proud tradition of the Tanzanian Women Miners’ Association and the Association of Zambian Women in Mining (see Chapter 3 and Lawrence et al., 2002, for a definition of proto-institutions). Within the trading sector, an example of the potential of such proto-institutions is that of the shashulere women, who act as buying agents for gold dealers. Lacking official recognition, these women created the Association de Mamans Chercheuses de la Vie (Association of Mothers Looking for Life), registered it provincially, and have been able to lobby the governor to enable three women to share a mining permit, thus reducing the significant start-up costs (Bashwira et al., 2014). Unfortunately, these associations do not always demonstrate high levels of collaboration and involvement (Mercy Zulu, personal

communication, 1/2/2017). This is a missed opportunity as collaboration and involvement are characteristic of successful proto-institutions (Lawrence et al., 2009).

6.6 Women and Poverty in Value-laden Madagascar

Madagascar is one of the world's lowest ranking nations in terms of women's economic opportunity (Economist Intelligence Unit, 2012). In the absence of broader gender equality principles, land tenure reform seems to have reinforced the primary ownership of land by male household heads at the expense of women's land rights (Widman, 2014). Women in the southwest, the study region, are particularly disadvantaged. In the southwest, notably around the mining towns of Sakaraha and Ilakaka, small-scale mining of gemstones, especially sapphire, has provided a lifeline to many rural women. Previous research focussed on the life histories of Malagasy women who mine and sieve sapphire along the rivers and streams next to the mines (Lawson, 2018a). This research seeks to move up the supply chain to understand the lives of women who have found a way out of the rivers to become traders. Mining work is heavily gendered with few women going underground and few gaining access to the valuable first pickings in the gravel (Lawson, 2018a). Some women work for sustenance, others sell their stones to buyers, large stones to Sri Lankan or Thai male buyers, and the smaller ones to local men or women. These local women traders are seen in stalls near the mines or moving around the mine sites or towns. They are known as 'ladies in hats' (Cushman, in Shortell & Irwin, 2017) because they have been able to buy a hat and a shoulder bag to keep their stock in with the little wealth they have acquired.

My research investigated how and why women miners move up the sapphire supply chain to become traders as well as the nature of the opportunities for women in this activity.

6.7 Methodology

My research questions were derived both from available literature and from previous research with women miners (Lawson, 2018a). Specifically, I asked how and why do women gemstone miners become gemstone traders, what opportunities do women have to participate in the sapphire value chain activity beyond extraction, and what role do institutional factors play.

To answer these questions, I present the work life history of eight women gemstone traders, aged between twenty-five and forty, who were responsible for children and grandchildren at home, as narrated by them. The methodology draws on two research approaches: Slim and Thomson (1993) and (Giele and Elder (1998). Central themes that determine the shape of the life course are , for example, location in time and place (cultural background), and heuristics,

such as life transitions, are then determined. Data collection relied on individual interviews and a focus group with the eight women traders, six from the mining towns of Sakaraha and two from Ilakaka. I give a detailed account of this methodology in Chapter 2.

6.8 Women Gemstone Traders' Life Histories

In line with Canavesio's (2013) work on female migration and Lawson's (2018a) research on women miners, all but one of the women respondents had moved to Sakaraha from the Androy, this region in the south had experienced extreme climate change, drought, crop failure, and starvation. Five out of the eight respondents lived in female-headed households and stayed in the sapphire region from 6 to 17 years indicating that they were settled there. Two traders in Ilakaka, Vetaso and Vivienne, said, "I want to stay here to the end. I have an area for our house and I shall buy it if Jesus helps us in saving money." Interestingly, these two women had also worked in one of the first sapphire regions in south Andranondambo. Vivienne explained, "It was there when I was a little girl that I first tried to find sapphire. I was in our villages and everyone was talking about sapphire in Ilakaka." She went to Ilakaka just after the beginning of the rush in 1999 and has not moved since. Forty-year-old Dety was the only one in the group who was not from the south; she came from a mining background in the garnet-bearing region of Ampanihy in the southwest where she had been taught about stones by her family. As is common in Madagascar, women in families pass knowledge about stones and mining onto the next generation.

6.8.1 Motivations for Taking Up Trading

Reasons which prompted women to take up trading were uniquely personal. One woman had become a second wife and had to find a way to support herself and her grandchildren. Another woman related her story with determination:

I started selling in 2007 and learned how to do it from my sister because I wanted to make money. Before this I was a farmer. I was then living in Androy and was pregnant with my second child. One day I want to be the boss of a mine site.

Mining and sieving of gemstones is gruelling work and can cause permanent injury (Lawson, 2018a). One woman I interviewed was fortunate to be able to become a trader and is now a quarry manager; her miner husband, however, was injured while working in the mine.

Pathways for women miners to becoming a trader are often complicated. Those who succeeded showed courage, tenacity, and ingenuity in 'trading up' the resources they have to handle to make a living for themselves (Hinton, 2016). For example, Vivien noted, "I bought a 2 gram

blue sapphire from a quarry miner and sold it for roughly four times the price. I bought stock to set up my business.” This tenacity displays high levels of personal initiative, and shows they are future-oriented and proactive (to use Campos et al.’s 2017 descriptors). Women traders use their social resources of industry knowledge shared with them by family and they leverage relationships in their networks of other women traders, local miners, and African traders. They learn from other successful traders about how to measure by hand, the names of the different coloured stones, and which ones are prized. They even borrow scales from each other.

6.8.2 Traders’ Work

Women trade their stones, sort them, classify them, and package and sell them to create financial resources to support their families, and buy more stones. Women traders have learned from living in poverty or close to poverty to make do with very little (Baker & Nelson, 2005). Dety said in her spirited voice, “When the sapphire sales are down I sell Coke.” Women can adeptly move between different income-generating streams and even maintain a second income stream, such as by selling aerated drinks or jewellery. They do so within a cultural landscape of deep-seated gender norms that continue to restrict the access of women to required resources. Another woman trader laughed after mentioning this, and added:

My stones are less than a gram. I buy a little pack and sell a little pack. I keep some from each week. I sort them out based on quality and colour. I buy the stones one by one, but sell them as a packet.

This shows that women consider the options carefully and choose one, as evident from one response I received: “Before I could earn 20,000 to 30,000 per day [8 to 12 AUD]. Now it is 50,000 for two weeks.” Women leverage social networks and relationships: “I buy from Sakaraha miners and they use us to sell their stones. It is better to sell to other Malagasy or Africans, but sometimes they face discrimination.” Such discrimination could manifest as buyers preferring to buy from Sri Lankans or Thais. Younger women use their boundless energy and hard work to create value from existing networks and find new ones as well as take up domestic and family duties. As Vetasoa observes, “The good thing is I am not exhausted!” Most of the women interviewed had ‘stepped up’ from back-breaking, small-scale mining. All but one came from a farming or mining background, carrying with themselves vital knowledge about mining, from the south of Madagascar. They take up sapphire work because the mines in the south were depleted and persistent drought had led to crop failure. One woman remarked, “I am here because I am poor and I try to find something to do.” Entrepreneurial theorists (Fuentelsaz et al., 2015) suggest that women are necessity-driven rather than opportunity-

driven entrepreneurs. This is true to some extent for the traders, but the catalyst for trading up is often the opportunity provided by the discovery of a large stone which can be used to buy stock and start trading. To explain this apparent contradiction, following Williams (2014), I suggest that the distinction between the two types of entrepreneurship is not always clear cut or particularly useful.

6.8.3 Challenges and Opportunities Facing Women Traders

In southwest Madagascar, opportunities for women to participate in the sapphire value chain activity beyond extraction are currently limited by a range of formal and informal institutional voids. There has been a systemic failure to integrate a regulatory framework which enables miners, traders, and the local community to capture their fair share of revenue generated from these non-renewable resources. Systems regulating the mining sector continue to stagnate in Madagascar with reforms to the Mining Code and permitting arrangements on hold since 2009 (Ministry of Mines, personal communication, 2/3/2019). In regional areas, the central government has failed to enforce the existing code and almost all aspects of the rough stone market are tightly held by Sri Lankan and Thai traders with only a handful of local Malagasy having access to the most valuable stones (Randriaarson, 2017). Local traders have no recourse to any benchmarking of prices. Unlike gold, which has a standard international spot price, understanding the price of precious stones requires skill and experience. Almost all transactions are in cash. As a result, money laundering and international criminal activity are widely reported (Duffy, 2007). A number of women traders wanted to become mine managers or businesswomen, but no one expressed any interest in or knowledge about how to become a licensed trader. The current system of formalisation is too costly and complex, and the offices are located too far away for the majority of women miners and traders to access. As informal traders, there is little hope that they will be able to access assistance and finance, even if it were available.

Marginalisation of women

Each morning in the sapphire towns when the light is bright, the miners come in to try to sell their stones to foreign buyers. The trading houses, the cars, the equipment, and the access to funds are largely in the hands of foreign buyers and those who support them. The situation is unjust for all local people, with an added layer of difficulty for women who are often kept in a powerless position by informal institutions of deep-seated, culturally biased gender norms. Such norms constrain women's access and capacity to talk to key players, such as the buyers,

unless they are in a formal or de-facto relationship; norms also permit male partners to demand a share of any financial gain the woman trader might have. Women are systematically excluded from access to the bigger stones at source, as they are rarely permitted to go underground and are relegated to sieving the male miner's tailings. In sales, there is a tradition that only men can have access to large stones and only they can sell these to rich men. As one trader told me , "The market that men can do women can't do, the small stones are for women, it's ordained by God."

Current business practice and lack of equipment also marginalise women. Price fixing is common for women trying to sell their stones. If a woman trader complains about a price offered by a foreign buyer, he will telephone his network of traders and tell them not to give her a better price. The trader's husband may also collude with the buyer to get his share. Women traders have no access to finance or business support. They do not know how to use the Internet and have limited access to mobile phones despite these facilities being available. They lack even the most basic tools, such as a reliable pair of scales or a loupe, and basic financial and linguistic literacy levels are low. Only one woman expressed an interest in value addition, cutting, or creating jewellery. This is despite the fact that even the simplest form of cutting can at least double the value of the stone (Gemmologist, personal communication, 1/3/2018).

Women working together

In all this, a strong positive factor for women traders is their capacity to support each other; they rarely operate alone. In the streets they may sell from individual booths but they are more commonly seen sitting together on the street corner. In Sakaraha, 30 women traders belong to an informal association called Zafiminondro, their Androy clan name. The function of this group is not strictly commercial: "We take care of each other as women far from home. For example, we help each other when there is a death in the family." In Ilakaka, the group has a more commercial aim: "We divide the profits among the group. If there are 10, we divide in 10. If we don't have enough money to buy, we share."

Chapter Summary and Conclusion

Our research shows how the activities of women traders have enabled them to make some progress in closing institutional gaps and creating new institutions in Madagascar's sapphire trade. Women traders challenge institutions, both informal, such as traditions about women not being able to deal in large stones, and formal, such as legal constraints, which keep them in

poverty. They do this through their involvement in the trade, making experiments with the minimal resources they have in their command. Women lack essential knowledge about broader market trends to be able to make judgements about the future and to distinguish themselves from other vendors. Lacking the power to advocate for themselves, women traders have changed the status quo with small steps using the money gained from the sale of a large stone to set themselves up and then trying a number of activities, including specializing in coloured or cat's eye sapphire, selling packages of stones to certain buyers, and stocking stones to sell in bulk. This way, they create something new with whatever they have and make careful, step-by-step business decisions. Three women traders from the eight I interviewed built on these strategies and are now successful quarry managers. This is a step up again to gain direct access to stones that were previously available only to men.

In undertaking these activities, women traders have challenged many myths and traditions which keep women away from the better stones and discourage them from working with men and foreign traders. Most women know exactly the size of the large stones they had found and how much they had sold them for. They have learnt not to give all their big stones to the men and they manage quarries themselves; a far cry from the male control implicit in a local proverb. In providing services to such women, it is vital to understand the pull of such traditions and the skills required to navigate them.

Since 2016, in Sakaraha, there has been support from a small but diverse range of actors; for example, a series of basic field gemmology workshops sponsored by Tiffany & Co. Foundation trained over 100 women in gemstone recognition and the use of tools. A recent evaluation found that this training was particularly appreciated. The women participants felt more confident from learning new knowledge and skills and this enabled them to earn more money for their stones; on average they reported a nine-time increase on their original price before training. In 2018, Australian and German Aid funded the establishment of a small women's lapidary centre which has been creating jewellery from local stones. They have received some training in small business but more is needed for them to be able to develop and market their products efficiently.

Women traders are not as yet part of the lapidary workshop. They currently work together as a clan group and careful ground work will be needed for them to broaden this to include other actors in the gemstone value chain and for their group to become an effective proto-institution. Such nascent proto-institutions could form the basis of a cooperative or small company if the regulatory and financial settings for these women improve and if there is an opportunity for them to formalise their trade. Future work with these women needs to find ways to build

capacity in their gemmological knowledge and their negotiation and marketing skills. In the longer term, fostering the development of these early proto-institutions will be vital as it is only when these women can operate as small registered companies that they will be able to access finance and secure their business. There is a market for responsibly sourced small precious stones such as sapphire, particularly stones with a story such as those of these women traders. With mentoring, product development, and appropriate networks, women traders could vastly increase their revenue on the stones (Lawson Gems, personal communication, 2/2/ 2019).

In southwest Madagascar, the most striking feature of the sapphire business is the absence of institutional support for local people, in particular women, who seek to make a living with this trade, a trade in a precious, luxury commodity which should have the potential to be transformative for these communities. Despite this, women gemstone traders have found a way to exploit a gap in the sapphire market by working with the small stones overlooked by the larger, more powerful buyers. They work on the edges of the sapphire boom and their personal and financial situation is far from easy. Future studies will consider how best to draw together research findings and experience on the ground to provide a basis for a viable EE for women working in the sapphire trade.

Chapter 7

Women Working in the Thai Coloured Gemstone Industry: Insights from Entrepreneurial Ecosystems

Notes

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Chapter Overview

The Thai gem and jewellery industry employs up to 900,000 people including many women in the formal sector and many more in the informal sector. This contrasts with the limited participation of women in the gem industry in India and Sri Lanka. There is little research into the role of women in the operation of the industry.

In this research I have used entrepreneurship ecosystem theory to understand the Thai institutions that support and hinder women in the Thai industry. I conducted interviews across Bangkok and Chanthaburi and recorded detailed life histories of female-owned businesses in the JTC.

Thai women are influential in the industry and there are positive workplaces where women can play an important role. Universities and government institutions are key enablers but there is still gendered division of labour with women earning less than men in some sectors. Cultural norms also prevent them from achieving their full potential. Some women are working informally in very poor conditions.

As Thailand seeks to become the global gem and jewellery industry leader, it needs to foster an EE that develops a new generation of gemstone entrepreneurs, especially its women and youth.

7.1 Introduction

Coloured gemstones, the trade name for all precious coloured gemstones other than diamond, continue to be in great demand by jewellers and watchmakers across the globe. The worth of trade in rough stones (excluding jade) is estimated at between USD 2 and 3 billion (Shortell & Irwin, 2017). Today, Africa provides much of the rough material to long established, traditional

processing and transformation centres in Sri Lanka, India, and Thailand. Apart from the operations of Gemfields, a British large-scale miner with operations in Zambia and Mozambique, and Fura Gems, a Canadian large-scale miner with operations in Mozambique, African coloured gemstones are still largely mined by small-scale operators including many women. Sapphires along with rubies and emeralds are high-growth stones in the Bangkok market (GIT, 2017) and the Thai industry has long held knowledge about how to best heat treat corundum (the mineral name for ruby and sapphire) to transform it into bright coloured rubies and sapphires. Certifying the identity and quality of these stones requires a high degree of experience and training, and the process of treating and value addition of these stones is an equally specialised craft. While African enterprises which certify and add value to gemstones through cutting, polishing, and jewellery-making do exist, they are underdeveloped and lacking in staff and sufficient market knowledge. They cannot yet compete in the market nor with the highly developed networks, knowledge and skills levels, and volume of workshops and skilled workers that have existed in Sri Lanka, India, and Thailand for decades.

Madagascar is one of the world's largest producers of a wide variety of coloured sapphire (Shigley et al., 2010); the GIT estimates that 80 per cent of sapphires being worked upon in Thailand are from Madagascar, although this is not reflected in official records as many of the stones are imported through informal channels (stakeholder interview; see also Shor & Weldon, 2009). Exploring the ways in which women work with these stones thus provides a thematic link to earlier work with Malagasy sapphire miners and traders (see Lawson, 2018a Lawson & Lahiri-Dutt, in press). Through observations and a series of interviews and work life histories of women working in the gem industry in Thailand, in this chapter I will give a critical overview of some of the institutions in the Thai gemstone EE which have enabled women to participate in the gem economy. I will also analyse the life stories of three successful female gemstone entrepreneurs working in the JTC. While not seeking to give any definitive comments about the status of women working in the industry, I will bring to the fore critical perspectives about factors which both enhance and hinder their contribution, and also make a case for how their contribution should be understood. Understanding this could be vital for the innovation required to move the industry forward given Thailand's aim to become the world's gem and jewellery trading hub within five years (GIT, 2018).

7.2 Gender and the Gemstone Industry in Africa and Asia

Although jewellery for women is the major end point for most cut and polished coloured gemstones, women's role in the supply chain from extraction through processing has not been

researched or documented in any comprehensive way. In Africa, many women are actively engaged in small-scale mining (Eftimie et al., 2012) and women can be seen working in coloured gemstone deposits, typically reworking tailings but also trading in small stones across Madagascar, Zambia, Mozambique, Malawi, Tanzania, and Kenya. Some research is beginning to emerge about their lives, for example, Walsh (2003), commenting on Malagasy women in sapphire-mining towns, notes women seem to use money from sales more strategically than men; they save for the purchase of cattle and sometimes even opt for sexual relationships with African and Thai buyers in order to gain better access to stones. In their field ethnography of women sapphire miners and traders, Lawson (2018) and Lawson and Lahiri-Dutt (in press) have found that the trade provided women with a vital revenue flow and brought them some independence and dignity. Some women dealers who have progressed to owning their own mines and work internationally in coloured gemstones are beginning to be noticed and their success stories are being documented, for example, Miriam Kamau, the owner of Mimo Gems Traders Ltd in Nairobi (Tao & Lucas, 2018).

Sadly, such success is not the norm for women gemstone miners or traders in Africa. Trade is largely dominated by local middlemen and Indian, Sri Lankan, and Thai businessmen and occasionally their local wives. Some recent developments for women in Madagascar, including training in basic field gemmology and basic cutting and polishing, are promising (Archuleta & Palke, 2018). In August 2018, a female lapidary centre was opened in Sakaraha, in the heart of the sapphire mining area, managed by a committee of three groups of women. Many women can now cut a simple cabochon but only a handful can cut facets. They will need mentoring to establish meaningful markets; without an EE with institutional support and careful marketing, local people, and women in particular, are not easily able to create successful businesses in value addition (Lawson & Harimalala, 2016).

Tanzania's Development Vision 2025 started raising funds in 2012 to train local women in mineral value-added skills, such as lapidary activities, jewellery designing, and manufacturing technology. The country has made progress in training with 47 women receiving intensive training in lapidary functions using Indian instructors and a 7-month lapidary skills course. However in reality, value addition is still in its infancy stage with a lack of experts in the field (*Rough Polished*, 2017). In Madagascar, the IGM, established in 2003 with funds from the World Bank, continues to deliver the highest quality gemmology courses (Gemmological Association of Great Britain or Gem-A) and a suite of lapidary courses. Unfortunately, its fees are prohibitive for most Malagasy working in the sector. Scholarship opportunities in the past

have trained a number of women now working in the industry as workshop leads or business owners (Lawson & Harimalala, 2016).

In India and Sri Lanka, both global hubs for coloured gemstones, value addition to gemstones through cutting, polishing, and jewellery-making is still traditionally a male-dominated domain. In a recent survey of 61 gem-cutting factories in Jaipur, women comprised a meagre 6 per cent of the workers and they were restricted to smaller family-based workshops (WHWB, in press). Sri Lanka has a small percentage of expert women cutters as can be seen in a video report by Lucas et al. (2014) and the present research uncovered a Sri Lankan female-owned lapidary workshop employing more women than men cutters (stakeholder interview). However, women in value addition or business are not the norm either in Sri Lanka or in the sapphire towns of Madagascar, which are themselves dominated by Sri Lankan male traders. In Pakistan, a striking exception is the Swat Valley emerald fields where Michelou (2018) reports on a successful project for local women, usually the wives of trained miners, who cut up to 3 millimetre emeralds for a European luxury firm; this firm pays a premium for stones with a transparent supply chain.

In Myanmar, women play an active role in both mining tailings and handling sales of stones in the market. Handpickers or *kanase* are groups historically comprising women, who have had the right to rework ruby tailings and sell their stones since colonial times (Lucas & Pardieu, 2014; Newman, 2018). In Luc Yen in Vietnam, women take the lead in mining and notably in the commerce of highly prized bright blue and pink spinel and also in creating gemstone ‘paintings’ (Trivier, 2018).

Thailand is one of the world’s most vibrant gem and jewellery trading centres and the major global hub for the cutting and polishing of ruby and sapphire (Shortell & Irwin, 2017). Compared with India and Sri Lanka, women appear to take a much more active role in the gem trade but there have been no supporting studies to confirm or explore this.

7.3 Research Questions

In this chapter I ask two questions:

What factors in the Thai gemstone EE enable or hinder women’s participation? and

What impact do women have on the Thai gemstone EE?

I seek to address these questions by uncovering the extent to which women are able to participate in the Thai gemstone EE. I seek to bring a critical perspective to understanding how women’s contribution should be understood and appreciated. Such understanding could be vital for the Thai gem and jewellery industry as it seeks the innovation required to move forward

and become the global centre in the industry. The concept of the EE and the role institutions play in the ecosystem are helpful in framing this research

7.4 The Entrepreneurial Ecosystem

An EE can be defined as a “conceptual umbrella for the benefits and resources produced by a cohesive, typically regional, community of entrepreneurs” (Spigel & Harrison, 2018, p. 152) where institutions and entrepreneurs are interdependent, influencing, and being influenced by each other (Brush et al., 2018). The original notion referred to interdependent workers working in a geographical region influencing the economy and new business start-ups (Brush et al., 2018), often catalysed and driven by a regional resource, such as oil and gas, or, in the Thai case, historical access to ruby and sapphire. Isenberg (2011) and the WEF (2013) provide useful and influential modelling of the elements of an EE. WEF (2013) mentions eight ecosystem pillars: markets, human capital, finance, mentoring, regulatory framework and infrastructure, education, universities, and cultural support.

Spigel (2017, p. 52) groups EE attributes into three categories:

- culture: beliefs, outlooks, and stories about entrepreneurial within a region;
- social: the networks which enable resources and knowledge to be shared, investment capital, mentors, and dealmakers, worker talent; and
- material: institutions and organisations including government and policy “rooted in a particular place that support high growth entrepreneurship” (Spigel & Harrison, 2018, p. 153), universities, physical structure, and open markets.

However, a significant omission from EE research and theory is a consideration of the role of gender (Brush et al., 2018; Spigel & Harrison, 2018). The following section discusses some of the factors affecting women in EEs. I provide further theory about EEs in Chapter 3.

7.4.1 Women in Entrepreneurial Ecosystems

Women’s participation in EEs may be limited by de-jure and de-facto inequity in access to and control over land and property rights (Meinzen-Dick et al., 1997). In formal institutions of some jurisdictions, gender inequity is institutionalised in laws or traditions that prevent women from owning or inheriting land or taking a bank loan independently, without the presence of a male relative (Hampel-Milagrosa, 2010). Labour market rules regarding women’s participation in certain activities such as working at night or while pregnant and lack of child care, also limit their role and activity (Brush et al., 2018). These considerations are important in gemstone entrepreneurship because women may find their access to mines and mine work restricted.

Women's entrepreneurial activity can also be inhibited by normative practices and hidden aspects of informal practices and norms such as 'the rules of the game' and who can play (Martí & Mair, 2009). Entrepreneurship, for example, is traditionally considered a masculine activity and cultural institutions regarding women's roles mean women entrepreneurs continue to juggle the burden of family care with business (Brush et al., 2018). Other examples include institutions, formal and informal, that result in there being less female entrepreneurs present across disciplines of science, technology, engineering, and mathematics and in positions of leadership, for example, on the boards of companies (Brush et al., 2018). A study of national EEs of 75 countries across 14 years by Hechavarría and Ingram (2018), has found significantly different impacts of gender on entrepreneurship with entrepreneurial activity highest for women when the EE features low barriers to entry, supportive government policy towards entrepreneurship, minimal commercial and legal infrastructure, and a normative culture that supports entrepreneurship. This is particularly pertinent in Thailand where women are disadvantaged in subtle ways by cultural norms (Mills, 1999).

7.5 Methodology

In the present study I drew on four data sources, literature and document review, key informant interviews (a total of 26 hours), work life histories (a total of 15 hours), and observations made in Bangkok and Chanthaburi in Thailand.

7.5.1 Literature and Document Review

I collected literature on the gem industry in Thailand from Thai government websites, such as the Thailand Board of Investment's review documents, and annual reviews and forecasts of the Thai coloured stone industry published by the GIT. I reviewed all issues of the main trade journals for coloured gemstones, *InColor*, and the peak industry body, the GIA's quarterly journal, *Gems & Gemology*, for work about sapphires. The history of the Thai sapphire industry was researched through primary and secondary sources, particularly the comprehensive studies by Roy Chowdhury and Abid (2018), Hughes (1997, 2013, 2017), Scott (1994), and Shor (2013).

7.5.2 Key Informant Interviews

I sourced key informants from the academic sector with the help of the Head of Gemmology at Kasetsart University and from the business sector including:

- Female traders at the JTC and the manager of the Asian Institute of Gemological Studies in Bangkok (interviews were conducted, recorded, and transcribed amounting to 26 hours).
- Three female and one male academic at Bangkok and Chanthaburi universities along with an informal focus group of undergraduates (amounting to 12 hours).
- Five female and one male employee of the GIT (amounting to 4 hours).
- Nine female employees of large Thai gem and jewellery firms, including senior management (amounting to 10 hours).

Life history questions (Giele & Elder, 1998) were used to open discussions with women working at universities, the GIT, as well as in large companies. This was followed by a series of specific questions for cutters and jewellers related to health and safety, knowledge transfer, and design, and for women business owners and leaders, on knowledge transfer, and design and leadership in the Thai industry.

7.5.3 Life Histories of Women Traders: Shopowners in the Jewellery Trader Centre

Over extended visits, meals, and chats, I recorded detailed work life histories (Giele & Elder, 1998; Lawson, 2018a) of four female-owned gem business owners in the JTC. I also investigated their business, their products, how they learnt their skills, design, leadership, the Thai industry, and opportunities for women. I chose the stories of three among these four owners, who worked exclusively with coloured gemstones, and I created narrative accounts for each one. For the sake of validity, I shared this with each of the traders to check for accuracy; modifications were made where necessary.

7.5.4 Observations

I conducted observations amounting to 26 hours in Bangkok and Chanthaburi with the following: universities (3 hours), GIT (3 hours), gem and jewellery companies (9 hours), JTC and markets (9 hours), and sapphire mine (2 hours). I documented these in the form of photographs and audio recordings.

7.5.5 Analysis

I recorded, transcribed, and printed all the interviews. The analysis was iterative and informed by the literature for EEs (notably, Spigel, 2017; Spigel & Harrison, 2018), gender and entrepreneurship (notably, Brush et al., 2018), and the work of Mills (1999) on gendered division of labour in Thailand. In all of this, I was mentored by key individuals in the industry

who supported my research over 12 months. I constantly re-examined and re-interrogated the printed transcripts to refresh my understanding of who my interviewees were and how and why their action and experiences were significant in my understanding of women working in this industry.

7.6 Thailand and Its Gem Industry

Alongside Sri Lanka and India, Thailand is one of the world's leading centres for gemstone and jewellery manufacture and export and it is Thailand's fifth largest industry (GIT, 2017). In 2017, the major export markets were the USA, India, and Hong Kong (GIT, 2017). While most traders keep their export offices in Bangkok, the traditional centre of the coloured stone industry and the place where much of the cutting is done, is Chanthaburi. This town with a population of about 30,000 lies 150 miles southeast of Bangkok, near the old ruby and sapphire mining area of Pailin on the Cambodian border. The Thai gem and jewellery industry employs 900,000 workers including 37,000 gem-related business operators (stakeholder interview). The coloured stone cutting and polishing industry alone employs at least 20,000 workers in the formal sector (stakeholder interview; Richa G., personal communication, 1/7/2019). However, given that two-thirds of the Thai population work in the informal sector (Kongtip et al., 2015), the total number of cutters and polishers is likely to be much higher with a high proportion of women in home-based work (HomeNet Thailand, 2012). These household industries are found across Thailand, in Bangkok, or clustered near the gemstone-producing centres of Chanthaburi and Tak near the Myanmar border, but also in northeastern areas of Chiang Mai and Kanchanaburi, which are currently important hubs of the country's gemstone processing (Cross et al., 2010). These small cottage industries are not regulated in terms of health and safety and wages are low due to piece pay (Cross et al., 2010; HomeNet Thailand, 2012). Thailand's success can be attributed to the skills of such workers, its history and geographic location, as well as to Thai institutions, both public and private, and the role of industry leaders, both male and female. I begin with a brief overview of Thailand's geography and history and then explore its institutions.

Thailand has been known since the fifteenth century as a source of corundum (Hughes, 1997, 2013, 2017). It is located close to major precious stone producing countries, such as Cambodia, Myanmar, Laos, Sri Lanka, and Vietnam. Today, Thailand's sapphire mines are largely depleted (Roy Chowdhury & Abid, 2018; Hughes, 2017; Shor, 2013; Shor & Weldon, 2009) and the country must draw almost entirely on imported rough stones to support its industry. Increasingly, it is sourcing stones from Africa through traders and Indian middlemen

(stakeholder interview) or through direct purchase and ownership of mines, as is the case of Ilakaka in Madagascar. In this research I found the GIT and large companies, particularly their female leadership, reaching out at government level to obtain concessions in gemstone-rich countries such as Mozambique (stakeholder interview; *GIT News*, 2018). The Thai gemstone industry has flourished also due to the skills of its craftsmen and women in both formal and informal sectors, a high level of professionalism, particularly in the treatment of stones, intricate cutting and polishing, casting, moulding, and gem-setting. Thai sapphire millionaires, for example, World Sapphires in Chanthaburi, have built their business on knowing just how to transform dull or dark corundum (often from Madagascar and Australia), into fine coloured saleable sapphire using just the right heat treatment or by diffusion treatment using elements such as beryllium (stakeholder interview).

7.6.1 Women in the Thai Gemstone Value Chain

Active Thai mining is now limited. Most women working in the industry cut and polish gems or make jewellery, and many female cutters operate in the informal sector as home workers (Thai Labor Campaign, in Cross et al., 2010). There are no gender disaggregated official statistics on the number of women working in the industry and owning businesses (stakeholder interview), but it is estimated that nearly half of the total 60,000 workers in the informal gem-cutting sector are women. Women working at home are typically paid by piece. They cut about 100 stones a day making about USD 4 per day (HomeNet Thailand, 2012). Without any financial support they buy their own equipment and often pay for their own transport once a week to pick up and deliver stones. They are excluded from any opportunities downstream, such as stone-setting or jewellery-making. They work for business people who are often not registered, so they cannot access government benefits such as occupational health and safety schemes or any type of paid leave. They often work long hours without any personal protective equipment and report backaches and eye problems (HomeNet Thailand, 2012). Their work is not well defined in terms of expectations and standards, which means they can also be subjected to bullying and exploitation by their male employers. In rural areas it is not uncommon to combine lapidary with agricultural activity such as rice growing and to work as a family unit where they can learn the trade from each other.

Figure 8 Ruby and Sapphire Mines in Thailand and Bordering Countries



Source: Reproduced with the permission of Lotus Gemology Co. Ltd, © 2018.

Women are also engaged in cutting and polishing in the formal sector in small factories, or large manufacturing jewellers like Pranda where 60 % to 70 per cent of its 4,000 employees are women, and Mona, a manufacturer of silver jewellery, where 80 per cent of its 70 staff is women (stakeholder interview).

Although the number of women working in factories can be greater than that of men, the type of work they do differs, and there is evidence of gender stereotyping of labour and pressure to conform to idealised and limiting norms of femininity in some settings. Men do the cutting of heavy rough stone, while women carry out preforming at the initial stages, simple cuts and cabochons, and then quality control of the final product. In many factories the higher paid skilful cutting and finishing is done by men, however it is important to note that master cutters in a number of Thailand’s most prestigious firms are women (personal communication 2/2/2020). In jewellery manufacture, men tend to make moulds, do heavy casting, and are more

involved in machine work; women do wax injecting, pre-finishing, filing, and plating. Cultural stereotyping can prevent trained female metal smiths from carrying out heavier aspects of metal smithing because of fear of damaging their skin.

Both men and women work in the highly skilled area of stone setting. They are jointly involved in designing and Thailand has a number of award-winning female jewellery designers, such as Nimmawadee Krainara. In fact, Silpakorn University runs prestigious graduate and postgraduate degree programmes in jewellery design. Many women study gemmology and some become teachers, others work in gem-identification labs. Fewer men work in these labs because, according to one source, men prefer to own their factory or be in management. As one stakeholder commented:

It doesn't mean that women can't do this, but there are more men because when women are married they have double work and I think women feel they are lower than men.

7.7 Thai Public and Private Institutions

The Thai gemstone EE is greatly assisted by its institutions. The GIT was created by royal decree to provide leadership, create standards, and ensure quality in the industry, to respond to industry needs and to act as a clearing house for information on the Thai industry. It also conducts research and training to develop the industry and train personnel in all aspects of gemmology and jewellery design. Currently, the GIT's main aim is to support the government's objective for Thailand to become "the world's top gem centre in the next five years" (stakeholder interview). The GIT employs many women as teachers and gemmologists, and the interviews made it clear that they were satisfied working in the gem laboratories. One respondent notes: "Mostly I work with corundum from Madagascar I can see this from platelet inclusions and then check chemical composition" (stakeholder interview).

7.7.1 Thai Government in the Entrepreneurial Ecosystem

The government through the Board of Investment of Thailand and the Industrial Estate Authority of Thailand plays an important role in the EE. In 2018 it announced its 'resolute support' for the sector with a series of measures to promote growth in the sector (GIT, 2018). These include promotion and trade fairs, tax exemption on wages, imported gems and jewellery, rough stones, machinery and precious metal. This is a significant decision since Thailand is heavily dependent on imported stones and machinery. There are also deductions on wages and salary for those in the trade and low-rate loans for machinery upgrades for small-

and medium-sized enterprises. The initiative specifically addresses training and skill classifications at all stages of gem processing aiming to improve conditions for, and retention of, Thailand's skilled crafts people using, for example, the e-expert system to attract highly skilled gem and jewellery professionals from outside the country (GIT, 2018).

Special economic zones close to gem sources on the borders of Cambodia and Myanmar specifically target the gem and jewellery industry. Gemopolis, a light industrial park in Bangkok, is a tax-free zone and has already become a manufacturing base for many gem and jewellery companies (GIT, 2018). There is, however, no specific mention of entrepreneurial development or women in these initiatives.

7.7.2 Publically Funded Universities Teaching Gemmology

Thailand has a proud tradition of public higher education with a total of 171 universities and colleges enrolling over 2 million students in 2016 (Buasuwan, 2018). Higher education will play a crucial role as Thailand seeks to transform itself into a high-income knowledge economy based on creativity and innovation and the development of new technologies as articulated in the government's Thailand 4.0 vision (Buasuwan, 2018).

Six of Thailand's major public autonomous universities have undergraduate to doctorate-level degrees in gemmology. The low fee structure permits a wide range of students including many young women to learn an in-depth understanding of the industry (Table 6). Thai scholars, including a notable group of women or 'lady scientists', as they are colloquially known, have become world-leading experts on gemmology and heat treatment of corundum and Malagasy sapphires in particular. These women are global leaders and provide expert technical advice to the GIT (stakeholder interview). See, for example, Phlayrahan, Monarumit, Satitkune, & Wathanakul (in press).

There are also many private-fee-paying institutions offering short courses with international accreditation, such as those by the GIA, the Gem-A, and the AIGS. The AIGS, the first gemmological training institute in Thailand, was established by the Sino-Myanmar-Thai Ho family and is today located within the JTC. It provides training and gemstone certification services.

7.7.3 Cultural and Social Aspects of the Thai Gemstone Ecosystem

The Thai gemstone EE has many highly skilled workers, working in some 37,000 gem-related businesses (stakeholder interview). Cultural and social attributes play an important part in defining the role of women, particularly in leadership. The Thai gem and jewellery industry is controlled largely by Sino-Thai families (Hughes, 2017) and while a male heir is preferred, this

does not stop women from taking leadership roles. One such example is the daughter of an established Sino-Thai gold trading family who now owns Mona, a major firm making silver jewellery for clients in Europe and the US and employing 70 women.

Table 6 Gemmological Education at Major Public Autonomous Universities in Thailand

Institute	Course	Comments
Srinakharinwirot University, Bangkok	Year-round undergraduate programme in gemmology and lapidary, design, and business	The first university to offer formal degree course in gemmology in 1992
Chiang Mai University, Thailand	Bachelor of Science in Gemmology; also postgraduate/PhD courses	The specialty of the Faculty of Science is gemmology and treatments
Silpakorn University, Bangkok	Undergraduate and postgraduate courses in jewellery design	Special course on Jewellery Design by the Faculty of Decorative Arts, set up in 1956
Burapha University, Chonburi	Year-round undergraduate programme in gemmology and lapidary, design, and business	Courses offered by the Faculty of Gems
Rambhai Barni Rajabhat University, Chanthaburi	Year-round undergraduate programme in gemmology and lapidary, design, and business	Courses offered by the Faculty of Gemmological Sciences and Applied Art
Kasetsart University, Bangkok	Undergraduate and postgraduate programmes on on Gems and Jewellery at the Department of Earth Science are optional subjects	Doctoral research centre with leading scholars and community gemmology outreach in Phrae

Source: Author.

The strength of the family and family entrepreneurship in Thailand is clear and there is a desire to do good and leave behind a positive legacy. This is well-illustrated in the narrative, in Box 3, of one of Thailand's leading businesswomen. She, together with her family, controls a business which works across the entire jewellery value chain—purchasing rough stone, cutting and polishing stone, setting, and manufacturing jewellery to be sold globally. As she says, “I can tell the story that from natural resources I can create something beautiful.”

Box 3 Narrative of Thailand's Leading Businesswomen in the Gem and Jewellery

Industry

X is the deputy president of a leading jewellery manufacturer in Thailand and is one of the five senior women who sit on the board of this prestigious firm. She is an active member of the Thai Chamber of Commerce and government bodies such as the GIT. Of the 4000 workers who work for her, 60 per cent to 70 per cent are women: “You can put more women in work than men,” as she says. Women work in almost all areas including workshop management and sophisticated cutting and are especially good at pre-finishing and fine delicate work, plating, and quality control, while men tend to do heavy machine work, making moulds and cutting stones. About 60 per cent of her designers are women but she mentions there is “talent in both sexes”. Every year she and her company sponsor 150 young women from the northeast and hill tribe areas, a three-year diploma programme which is part of the Thai Royal Princess programme. Her company provides pastoral care and the education for the enrolled students. At the end of the programme as many as 70 per cent are retained as skilled workers at the company. Care has been taken to make the factory an attractive place to work with plants on the benches, music, and exercise, There is also a crèche, accommodation for the workers, health insurance, and incentives for long service. More than half the staff has worked there for over 10 years. For example, N comes from Bangkok and has been working in stone-setting for 30 years, since the age of fifteen. Today, she is one of the three stone-setting workshop supervisors, the other two being male. She says:

Men are equal to women, for example, We can both be supervisors.

It can be a difficult job, but I will teach them. I am very proud to have been able to support my family through my job.

Source: Author

Another example of an entrepreneurial Sino-Thai family is the Ho family. Originally from South China, via the ruby fields of Myanmar, the Ho family established the Thai Gem and Jewellery Traders Association. Together with Bijoux Holdings, they created Asia's largest gem and jewellery marketplace, the JTC, a 59-story building in the heart of the gem district dedicated to gems and jewellery. The JTC functions as a hub, a cluster, and a one-stop shop for sellers and buyers of wide range of precious and semi-precious stones and a gem certification centre, AIGS Thailand. Although not characterised by female leadership, their company with its investment capital and deal-making have facilitated female entrepreneurship in the JTC, and two women are listed on the executive management team.

The JTC is certainly a material attribute of the Thai gem ecosystem but it also facilitates a process of social and cultural exchange with its remarkable international melting pot of traders, Thai, Indian, Sri Lankan, and a wide range of African nationals selling rough stone. On its doorstep, at the Starbucks coffeehouse, African gem dealers meet. Predominantly Guinean, but also Nigerian, Senegalese, Malagasy, and Congolese, mostly men but some women, they are an essential part of the ecosystem, and the Thai industry needs their stones. There are 300 registered traders within the centre and Henry Ho estimates that at least 1,000 women are employed in various roles (personal communication, 1/3/2019). At least 18 women are listed on the individual trader's website. The following section narrates the stories of three female traders in the JTC collected over a week spent observing and interviewing them.

7.8 Life Histories of Women Gem Traders at the Jewelry Trade Center

These three established female traders had been working in the JTC ranging from 5 to 10 years. They have set up small shops or booths to facilitate business. They have more than 20 years' experience in the gem trade. To protect their anonymity, their names and their company names have not been used.

7.8.1 Y Gems

Y sells jade, unheated ruby and sapphire, and traditional or antique jewellery. She studied chemistry and started selling gemstones to supplement her income. Her aunt taught her about the gem business, taking her to the Myanmar border and introducing her to ruby wholesalers, teaching her about selling her medium stock, but to keep "the more expensive for a special day". She took advantage of cheap labour to make yellow gold settings for the ruby and sapphire she bought. At first, she sold only wholesale to Thai customers and to antique shops specializing in traditional Thai styles; but fashions changed and these shops have since shut down. Five years ago, she opened her shop in the basement of the JTC. She now sells from her

collection and buys from other wholesalers. She has an eye for the beautiful and the original, and knows her customers well.

7.8.2 T Gems

T Gems specialises in selling good quality large sapphire, emerald, and ruby. The owner comes from a Sri Lankan gemstone trading family but became interested in the business after her marriage to an American mining engineer working in Sri Lanka. “He encouraged me into the business and we had a partnership.” They opened their first lapidary store in Sri Lanka employing 350 workers, including many women engaged in processing (cutting, polishing, and heating) sapphire, including Australian sapphire, as well as stones from their own river mine. Following the onset of civil war in Sri Lanka, they settled in the USA where she worked in a chain of jewellery shops until her husband’s untimely death stopped her work for three years. Encouraged by the Ho family, she studied gemmology and picked up the trade again by starting a lapidary workshop in Sri Lanka. She moved to Thailand seven years ago and set up T Gems.

7.8.3 Z Gems

Originally a banker, the owner of this company was one of the first to rent a booth in the JTC. She specialises in unheated exquisitely coloured stones. Her sister was a diamond trader and Z first completed a module on diamond grading with GIA’s training centre in Bangkok but was quickly drawn to the vibrancy of coloured gemstones.

“I switched to coloured stones without knowing that not many women are doing this alone as usually it is a family business or they are helping their husbands. But I started alone and I said I was lucky as I had already established some contacts abroad.”

She faced hardships in her early days. It was not safe to travel to the mines and she remembers people asking “Who is that woman? They didn’t trust me and the Indians laughed at me. My small booth looked awful.” This all changed when one day a Chanthaburi merchant agreed to sell her stones. Her business now has an excellent established network of suppliers and customers of exquisite stones.

7.9 Discussion

The EE in Thailand has been an enabler as well as sometimes a hindrance for female academics and gemmologists, for cutters and polishers in the formal and informal sectors, and for women in the business of selling cut stones. Enabling factors and the hindrances are discussed for each group along with their contribution to the industry.

7.9.1 ‘Lady Scientists’ and Female Gemmologists

The Thai university system has been an enabling force, empowering many women working in this field. ‘Lady scientists’ and female gemmologists are trained under a public university education system that provides specialist education in gemmological science across Thailand. A number of the women interviewed had studied to a PhD level. They are outstanding scholars and have had opportunities to study abroad and even publish; they presently engage in actively mentoring the next generation of female scholars and seem to have support from the academic hierarchy. One woman says:

One thing that is good about Thai universities is that the Dean always considers you as a professor. I feel warm at heart. Here, they support me and because of this, I have been able to grow.

There is also a tight knit community of practice among these women and their male colleagues with clear examples of mentoring, leadership, and friendship; this has enabled many ‘lady scientists’ to succeed in the industry and to provide authoritative leadership. At least two directors of the GIT have been women. Others find fulfilling work in gem identification labs, which are an important part of the gem industry providing professional reassurance for buyers about the identity of their stones. However, one undergraduate programme leader stressed that all her graduates would need further training and work experience preferably in a foreign-owned lab in order to get a good job. Despite well-equipped facilities and a good programme, training received with prestigious bodies such as the GIA is still extremely important for the next generation of workers in this competitive industry.

7.9.2 Female Cutters, Polishers, and Jewellery-makers

Female stone cutters and polishers as well as jewellery-makers are a significant part of this ecosystem. In the formal sector, those working in large companies in Thailand, such as Pranda and Mona, have the benefit of working at an attractive workplace with childcare facilities. Pranda provides accommodation, health insurance, and incentives for long service. There is also an opportunity for women to develop new skills and female role models are provided by senior leadership and supervisors at both these companies. Even with all this, however, there is evidence of persistent economic disincentives for female cutters linked to limitations placed upon women’s work. Women at one large Chanthaburi factory are only engaged in preforming and grading of stones, while the more sophisticated, better-paid cutting tasks are performed by men.

There is stark contrast between the majority of female cutters working in the informal sector and those in the formal sector. Women in the informal sector miss out on basic benefits such as social protection, maternity, and sick leave. They are not provided with personal protective equipment and suffer from health ailments such as eyes and back problems (Cross et al., 2010; HomeNet Thailand, 2012). While for some the opportunity to work at home and combine this livelihood with other activities like farming may be an incentive, for other women they only accept this very small piece pay for their labour because they are poor. “[W]e cannot stop cutting stones, it is the only skill we have” (Cross et al., 2010). Women in this sector provide a huge flow of cheap gemstones to the industry close to the trading areas; their work needs to be recognised and regulated. A case study by HomeNet Thailand (2012) suggests that up to 100 stones a day are cut—further research is needed to confirm this.

7.9.3 Women Traders at the Jewelry Trade Center

The women traders in the JTC have all been enabled by their professional backgrounds, their family connections to the gem trade, and training courses in gemmology offered in Bangkok. One trader mentioned benefiting from tax benefits for the industry, but it is really the JTC, a thriving international one-stop shop for gems and jewellery, which has provided them with a unique opportunity to establish themselves in a dynamic environment with many networking opportunities and access to both commercial buyers and sellers and the tourist and retail market. In contrast to the monochrome sales rooms of the male traders, the women’s shops are vibrant and individual, reflecting their passion for the industry.

As with most female entrepreneurs, their stories are interwoven with strong informal institutions of family and friends and the knowledge that accompanies this (Stead, 2017): the rich heritage of a Sri Lankan gem-trading family, marriage to an American mining engineer, a sister in the diamond trade, a gem-trading aunt in Mae Sot on the Myanmar border. While not part of the elite, they are women who have had opportunities, training, and family support, and have used these to create successful businesses. Two of the traders mention friendship and mentoring from the Ho family as significant in their work life history, such mentoring is a strong attribute of a successful EE.

Hechavarría and Ingram’s (2018) global research has found that cultural forces can also negatively impact women’s entrepreneurial intentions; there can be an ‘invisible masculinity’ (Ahl, 2006) associated with entrepreneurship such that women are deemed unsuitable as entrepreneurs in some cultures (Gupta, Turban, Wasti, & Sikdar, 2009). Z’s story has a number of examples of these sexist views of women in business. Z’s inner resilience enabled her to rise

above these views but such male attitudes and ongoing pressure on unsupported workers can sap a woman's confidence and her entrepreneurial intentions. An example is when women gemmologists told us that their male colleagues were more likely to branch out and own their own gem factories and labs. When asked why this was the case, they told us: "Because when women are married they have double work and I think women feel lower than men."

Chapter Summary and Concluding Insights

In the study presented in this chapter I reflect on the changing nature of the gem industry in Thailand, a mature industry which must now seek far and wide across mineral tracts of the world to find suppliers in a highly globalised industry. The driver of the industry can no longer be its regional proximity to gemstone sources; it must rely on developing linkages, local and global, between its institutions of education, government, and successful private business and above all investing in its people. I have considered the role of women in the industry, their contributions, and factors that facilitate or prohibit their full participation. Compared to the gem industry hubs of India and Sri Lanka, Thai women play a far more active and vital role in the industry as leaders, academics, traders, and as dedicated and skilled workers in the formal and informal cutting and jewellery-making sector. Women head up some of Thailand's most prestigious gem and jewellery businesses and have made a difference in other women's lives through leadership, mentoring, family-friendly workplaces, and even schemes to benefit rural women. Both academic and businesswomen have provided leadership to institutions like the GIT, thus fostering growth in the EE. However, I have also seen challenges women face as they encounter the 'invisible masculinity' (Ahl, 2006) associated with women's entrepreneurship in this industry and in the less-well-paid cutting work that women find themselves doing.

While honouring these women's contribution to the industry through their meticulous preforming, cutting and polishing, and grading of stones, it is time for such women to participate more fully in its economic benefits. This is especially true in the case of the thousands of women working in the informal sector, at home, or in small shops. Future research should work with organisations like HomeNet to better understand women's work in the informal sector and to find ways for them to be connected with the country's educational and entrepreneurial initiatives for the sector.

Many women in the gem and jewellery industry in Thailand are highly educated. There are skilled and creative designers that draw on centuries-long history of decorative arts and craft. In this chapter I strongly encourage measures that will connect women and men, particularly

young women graduates and designers, as fresh voices and creative forces and significant new resources, to the Thai gemstone EE. Explicit teaching of entrepreneurial skills, mentoring, networking events, and incubators are needed to propel the current gemstone ecosystem to a new level. This will be essential if Thailand is to be successful in reaching its goal of becoming the world's gem and jewellery hub (GIT, 2018) in the next five years. Thailand needs to make sure its university courses in gemmology and lapidary, design, and business provide graduates, both male and female, with the highest possible level of skill for the industry.

The young female students I met at Bhurapa University Faculty of Gems in Chanthaburi were brimming with enthusiasm for the course they were studying and wished to contribute to Thailand's vision of becoming a global hub in the industry. As one female undergraduate student commented: "Thailand needs us. New stones are hard to find. we need to create new materials and treatments. I think design is amazing and beauty is so important for humans." The Thai gemstone EE can only be richer by listening to such voices.

Chapter 8

Discussion

What makes change happen for the better in women's lives? (Cornwall & Edwards, 2014)

Chapter Overview

In this chapter, I first critically consider the term empowerment in the light of the literature and the findings of this thesis. I will then present an overview of my research addressing the primary research question:

How can women be empowered by the ASM of gemstones and their associated supply chains given the challenges and opportunities they face?

To answer this question, I identify the opportunities and challenges facing women working in the gemstone supply chain and the factors that empower these women, first in Madagascar at the source of extraction, then among women traders, and finally at downstream nodes of value addition and business in Thailand.

I then use institutional and entrepreneurship theory to analyse and reflect on the factors that create challenges or provide opportunities for women's empowerment at both personal and systemic levels. I will also draw on the theory and practice of work on GVCs (Gereffi, 2018) and GPNs, particularly in relation to gender (Barrientos, 2019), to discuss the way in which value is captured along the gemstone value chain and the opportunities for women therein.

In relation to the issue of informality in the industry, I address the question:

Why would keeping some parts of the gemstone supply chain in the informal sector be beneficial to women's empowerment?

I propose a model to address some aspects of the challenge of informality for women in the gemstone value chain. To do this, I draw on theoretical work which has linked informality with both institutional theory and EE actors (Gómez et al., 2020; Manning & Vavilov, 2019; Webb et al., 2009).

I will then conclude with a summary of the main findings of the research and its contribution to knowledge.

8.1 Power and empowerment

A significant issue that has emerged over the course of this research has been the need to provide a nuanced and appropriate understanding of the concept of power and the empowerment for women.

8.1.1. Power that structures the field of the gem trade between Madagascar and Thailand, gender relation and patriarchy

In contemporary sociology, the term power is widely and variously defined. Many scholars begin by referring to Weber (in Roscigno, 2011) who is said to have defined power in the broadest sense by referring to it as the structural capacity for an actor to cause change in the behaviour of another actor (Ritzer & Ryan, 2011; Roscigno, 2011). The concept of power has been much studied (Haugaard, 2010) and a typology of power is proposed by Dowding, (2020) with two categories of power: (1) ‘outcome power’, which refers to the ability of an actor to bring about some outcome, ‘the power to’ and (2) ‘social power’, which refers to the ability of actors deliberately to change the incentive structures of others, the ‘power over’ (Dowding, 2020 p. 3- 4)

In this discussion of the power that structures control the field of the gem trade between Madagascar and Thailand I will focus on the basis through which power is derived in this context.

Drawing from Bourdieu I ask, in what field of power, and in what position in that field are the actors in this supply chain positioned²³ ?

Pierre Bourdieu’s work on the political sociology of power and the cultural determinants of power has been highly influential across the social sciences. His work is impacted by his experience of French colonial power and the Kabyle in Algeria (Goodman & Silverstein, 2009). I have chosen to frame this discussion in Bourdieu’s work because of they way it resonates with my data and also the cultural and historical parallels with the influence of France on the political economy of Madagascar.

Bourdieu argued that power is derived from an actor’s position in a field, which is determined by their access to four core varieties of capitals: economic (wealth), cultural (e.g. education)

²³ This question is adapted from a citation in Rabinow (1986, p. 252).

social (network and connections) and symbolic (status and prestige) (Bourdieu & Richardson, 1986).

Across the sapphire value chain in Madagascar, women operate in a field where their power is severely limited by a lack of all four of these capitals. As these women move along the supply chain, they acquire capital that gives them some power. For example, a sapphire miner who perhaps for the first time in her life sells a gemstone for cash, is empowered not just by a little economic wealth but also by social and symbolic capital – she becomes known to traders in her own right and she has the status associated with being able to contribute to family finances. Further along the supply chain ‘the ladies in hats’ have social and symbolic capital which comes from being known as a business woman in the town. The women’s gemstone cooperative ROAM²⁴ has given poor rural women a deep level of social and symbolic capital even if economic capital is taking longer to realise.

In the geopolitical field of the South East Asian gem trade, Madagascar has sapphires, a precious economic capital derived from natural resources, but the country as a whole and those working as miners and traders have derived little power from this resource. Nations which purchase gemstones from Madagascar are doing so because they have exhausted their own capital of stones. Madagascar should be in a powerful position, but its power in the field is weakened by institutional failure caused by repeated economic and political crises.

Other actors in the field such as Sri Lankan and Thai traders are more powerful both in their capacity to dominate trade and in value addition activities (‘power to do’) and in social power (‘power over’). They use social power to deliberately manipulate local miners and traders into a position of dependence and poverty through keeping prices low, through favouritism, and through the power, which comes from the ostentatious display of tokens of wealth such as gem palaces, cars and guns.

8.1.2 Women’s empowerment

The research question driving this research has empowerment of women as its main concern. The concept of empowerment for women particularly in the context of development is multifaceted and often political. In the 1980s and 1990s, feminist writings stressed that empowerment was not something that could be “bestowed”, rather it was “an unfolding process

²⁴ The cooperative of 15 local women engaged in lapidary and jewellery making was created in 2019. The name ROAM signifies autonomy and independence.

of changes in consciousness and collective power” (Cornwall, 2016, p. 343) recognising inequality and pressing for change (Batliwala, 2007). Empowerment is about changing power relations and women’s capacity to make choices; it is a process and a pathway rather than a fixed and measurable target (Cornwall, 2016.)

In recent use of the term empowerment in development documents, it has lost some of this transformative edge (Batliwala, 2007) and concentrated on “instrumental gains, what women can do for development rather than what development can do for women” (Cornwall, 2016, p. 342). This asset-based approach sees empowerment in terms of equality of access to financial services, such as giving women more power over income and assets such as land and technology (Alsop, Heinsohn, & Somma, 2004). These are essential elements of empowerment but such an asset-focussed approach can overlook the institutional work that is needed to change norms and challenge the institutional logics (Venkataraman, Vermeulen, Raaijmakers, & Mair, 2016) which underpin and maintain gender inequality in such assets.

An example of this can be seen in SDG Goal 5 (United Nations, 2019). Associated with this goal are a number of indicators that are very useful and pertinent for this research. For example, progress towards the goal is measured in the “share of women among owners or rights-bearers of agricultural land, by type of tenure” and the “proportion of individuals who own a mobile telephone, by sex” (Indicators 5a and b). While these indicators are good for monitoring, evaluation, and establishing a baseline that can drive change, they do not of themselves constitute empowerment, nor do they address the institutional work needed to progress empowerment. In fact this point has been raised in the United Nation’s 2019 progress report on the SDGs:

[I]nsufficient progress on structural issues at the root of gender inequality, such as legal discrimination, unfair social norms and attitudes, decision-making on sexual and reproductive issues and low levels of political participation, are undermining the ability to achieve Sustainable Development Goal 5. (United Nations Sustainable Development Goals Knowledge Platform, 2019, p. 11)

An asset-only focussed approach to empowerment can also fail to acknowledge the individual, personal, and relational aspects of work that must be done by women to take decisions and make changes in their lives. For example, for women traders, a mobile phone could be a valuable tool enabling them to capture an image of their stones and send it to a trusted buyer and also to record their assets on block chain. However, without institutional work and systemic change, the phone will quickly be sold to raise cash.

In this thesis, I have defined empowerment as achieving both a level of economic and personal freedom. Economic empowerment is about having the financial means to support yourself and your family but personal empowerment goes to the heart of institutional disadvantage and institutional work. It is a more nuanced and complex concept to capture than economic empowerment. It is defined by leading feminist scholar Kabeer (1999) as “the process by which those who have been denied the ability to make strategic life choices acquire such an ability” (p. 435).

Empowerment relates closely to women’s identity, their perception of themselves, and how they are viewed by others in the family and community, their capacity for personal agency and voice, their knowledge of their rights, and their participation in community life (Kabeer 2012, p. 20). In Madagascar, this capacity to contribute to family and community duties, such as the purchase of cattle and funerary objects, is of particular social and spiritual importance (Tucker, Huff, Tombo, Hajaso, & Nagnisaha, 2011).

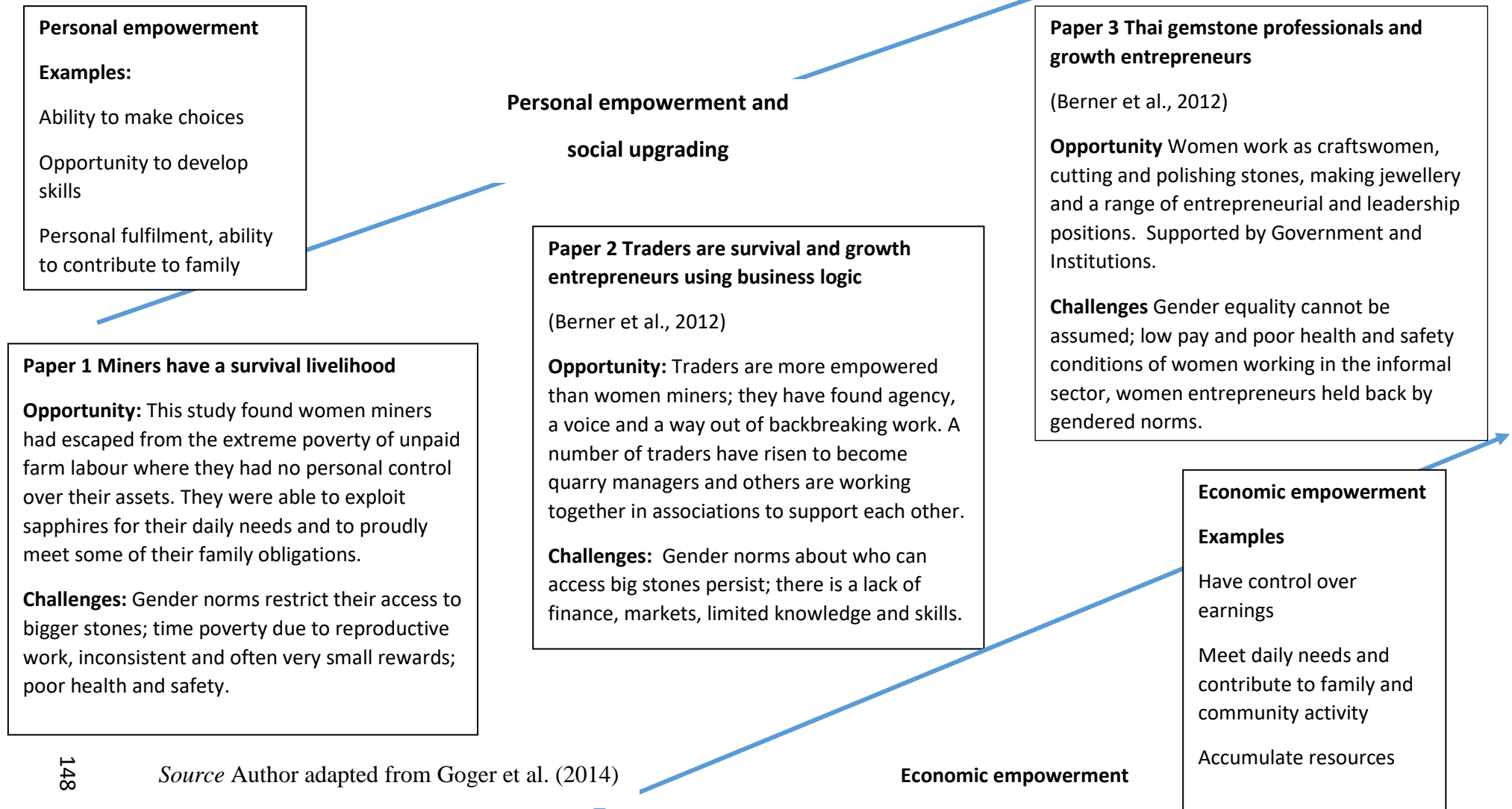
8.2 Overview of Research Findings

In this research, I have examined how women are empowered by their participation across the gemstone value chain in three field studies of the sapphire industry (Figure 9). I investigate how women at the beginning of the value chain are empowered through their work in two studies in Madagascar, one of small-scale miners (included in Chapter 5) and one of women mineral traders (included in Chapter 6) . In the third study (included in Chapter 7), I consider how women are empowered through their participation closer to the end of the value chain in the gem and jewellery ecosystem of the global hub for the industry in Thailand.

I found the sapphire value chain can provide a ‘ladder of opportunities’ for women (Figure 9) and an increasing level of empowerment both financially and personally as the women moved up the sapphire supply chain. Access to minerals in the value chain provides them with the opportunity to earn income through participation in survival or growth entrepreneurship activity (Berner et al., 2012). For many women, the income they have generated from gemstones is the first money of their own they have to spend. Particularly empowering is the chance to take some control over the way this income is spent, for example, to provide for families and to undertake symbolic community obligations (Kabeer, 2012) or, in the Thai case, to pursue higher education. Thai institutions and incentives to investors have been significant in supporting a thriving hub for gems and jewellery and thus empowering women’s participation.

However, women's empowerment can only occur through a combination of institutional work at both a systemic and an individual level (Sandler, Rao, & Eyben, 2012). In this research, at all stages of the value chain, I found systemic institutional barriers, which prevented women from capturing a more substantial share of the gains (Gereffi, 2018). Formal and informal gendered institutions limited women's control over land and curtailed their access to equipment and valuable assets such as larger, finer quality gemstones. Time constraints, typically the result of reproductive commitments, significantly curtail women's growth as entrepreneurs (Berge & Pires, 2019). Structural inequalities such as lack of education and low levels of literacy prevented women from accessing finance and formalisation initiatives. Invisible masculinities (Ahl, 2006) continue to limit women's entrepreneurship in Thailand, where a lack of confidence and time constraints prevented some women from starting their own gem businesses despite their knowledge and skill.

Figure 9 Sapphire value chain provides a ladder of opportunities for women



I will now discuss the challenges, opportunities, and factors of empowerment for women in this industry as they work as miners, traders, and in Thailand in value addition activities.

8.3 Miners at the Beginning of the Supply Chain: Narratives of Harshness and Hope

8.3.1 Challenges: Structures of Constraint

The women miners in this research have made strategic life choices and exercised agency to migrate from starvation in the south of the country to work in the sapphire mines. They have taken action to “offset the impact of idiosyncratic or generalised shocks and to cope with intensified processes of impoverishment” (Kabeer, 2012, p. 23), in this case the impact of drought and climate change on farms in the south of Madagascar. However, such choices and agency have been exercised “within the limits imposed by the structural distribution of rules, norms, assets and identities ... in their society” (Kabeer, 2012, p. 13). These structures of constraint (Folbre, 1994) operate over the women’s life course curtailing both their personal and economic development and restricting their opportunities for gender equality, empowerment, and in many cases, a life beyond day-to-day survival.

Patriarchal norms and rules dictate that they are beholden (Haugen, 2018) to male relatives who can control their assets and decide how any earnings are spent. They may also be beholden to temporary and frequently abusive ‘sapphire marriages’, transactional arrangements that control their access to sapphire rich gravel to wash in return for sex and any big stones found. Cultural norms discourage, but do not prohibit, women from going underground and accessing the first valuable pickings of the mineral. Women also rarely participate in the more lucrative teams of male miners. There is an incongruence (Uzo & Mair, 2014) about the way in which such norms are applied, with the exclusion of women from more valuable stones being justified by their supposed lack of strength to go underground or work in teams. Women are usually relegated to re-mining the tailings left behind by male miners. This requires great strength but the remuneration is small. For the small stones they find, they are paid less than a dollar. Feminist scholars refer to such unequal distribution of resources and opportunity as gender asymmetry (Stoller & Neilsen, 2005).

Legal and financial exclusion

Institutional, normative, and structural factors combine to disempower women, creating gender asymmetries in the opportunities offered by their work as sapphire miners.

As in most of sub-Saharan Africa, small-scale miners, male and female, do not engage with the formal legal system. They have no rights over the land they mine and they have no knowledge

of what rights could mean for them (Hallward-Driemeier & Hassan, 2013, p. 23). Women are particularly disadvantaged, because while the legal system gives women equal rights, institutional constraints operating at rural levels give women only secondary rights to land, and inherited land goes to male siblings. In the case of divorce or abandonment, women are left with nothing (Archambault & Zoomers, 2015).

Women miners, like other rural women, have low levels of financial inclusion and few have bank accounts or the capacity to take out loans. This is the result of structural inequality such as lack of education, lack of steady income, and collateral. It is also the result of normative constraints of law and tradition, where men are considered to be the head of the household and are responsible for all decision-making including financial decisions (Convention on the Elimination of All Forms of Discrimination Against Women [CEDAW], 2015).

There are also strict norms controlling when women can speak. Male miners are more likely to be able to bargain with landowners, local authorities, and Sri Lankan buyers than women. This means that women miners are disempowered in their work, for example, in negotiating a price, learning new information, or in the negotiation of mining rights.

State failure to provide basic services means that most women miners are uneducated and illiterate. This gives the few who can read a disproportionate amount of power. On a personal level, illiterate women in this research considered themselves to be disempowered if they could not help their children to learn or advance their own knowledge about gemstones through reading or written material.

Unpaid work and time poverty

In her analysis of the gendered causes of poverty and the processes that maintain women in poverty, Kabeer (2015) highlights the critical role of gender asymmetry in access to, and control over, the means of survival and security among households. For women in ASM as in most rural activities, the most fundamental gender asymmetry relates to the control they have over their own physical labour. In Africa, entrenched gendered norms means women and girls still carry the responsibility for the unpaid work of family and household care. This leaves them with less time (Eftimie et al., 2012) and crucially less energy than male miners. The opportunity cost of this is that women miners have less time to find stones and fewer opportunities to learn more about mining from other miners and from any training offered by NGOs.

Institutional failure

These gender asymmetries created by patriarchal norms and constraining institutional conditions particularly disadvantage women. This disadvantage is multiplied when it is combined with the Malagasy state's institutional failure to regulate mining and institutional incongruence, whereby formal and informal institutions draw different boundaries about what is socially acceptable in business (Webb et al., 2014). This incongruence tends to exclude small players such as women who do not know the rules of the game (North, 1990) or refuse to play by such rules. Institutional voids and corruption mean that those women who are not related to powerful stakeholders or cannot pay small bribes have no control and no work security. In addition, Sri Lankan business interests often control local authorities and traditional owners. Their Malagasy wives can exert a privileged and controlling influence over female miners and traders as can be seen in Figure 6.

8.3.2 Opportunities

In moving from unpaid work in the failing farms of the south, these women have followed a pathway that has given them some level of personal empowerment. The economic activity they have left behind is particularly disempowering, “within the confines of family relations, particularly unpaid productive work in farm and family enterprises, holds out the weakest transformative potential for women's lives” (Kabeer, 2012, p. 20). The women's stories and words reveal that by moving into mining, they have found some personal and economic empowerment for themselves and also for their children.

The sapphire fields: A place of opportunity

Kabeer (2015), in her work on gender and poverty, highlights the multiple and overlapping horizontal inequalities of gender and ethnicity in maintaining poverty. Malagasy women from the south and from groups that were traditionally slaves can experience discrimination in relation to higher status women from the Highlands (Randrianja & Ellis, 2009). The sapphire fields seem to be a leveller of such ethnic discrimination. Women and men from the south work alongside men and women from other parts of Madagascar. Canavesio (2013) and Bryceson & Geenen (2016) have noted the transformative nature of ASM as a frontier experience where shared labour leads to “labour transformation, a process in which individuals' skill acquisition, economic exchange, psychological reorientation, and social positioning evolve towards a shared occupational identity” (Bryceson & Geenen, 2016, p. 296). The empowerment of this shared identity is frequently revealed in the life stories of women miners and traders.

The sapphires fields offer an opportunity for women to work and importantly, Malagasy cultural norms do not prohibit, women's participation in mining with women working shoulder to shoulder with men. Women's participation is thus made possible through these low entry barriers to mining whereby the only capital required is strength, hard work, resilience, and optimism.

Women's careful mining work and observations can sometimes give them an advantage. Women are less mobile than the male miners (Canavesio, 2013, p. 201), which means they know the history of the sites well, where the stones have been found, and the impact of the season and the movement of the river after rain which may indicate to them where the stones are caught. This knowledge, along with their patience and skill, sometimes pays off in the discovery of a stone of value. For some, the sapphire fields are a place you can always come back to, as a resource for a new stage of life, for example, following the death of a partner, a new partner, a funeral, or a child. A typical comment was: "I can live on sapphires, I want a sapphire for myself, the children of the father are dead, and I need my own money to look after them." In this way women are doing their own empowering, institutional work.

Can the women miners interviewed for this research be viewed as proto-entrepreneurs or survival entrepreneurs (Berner et al., 2012)? Most women miners are not yet entrepreneurs, they are at the survival node of the value chain. Their logic is simply meeting their daily needs and perhaps putting a little away for the family. They do not use entrepreneurial logics such as risking their own assets to buy stock or allocating factors of production (Berner et al., 2012). However, some women in this area do find a way to incorporate some of these elements of entrepreneurial logic and can be viewed as survival entrepreneurs or even growth entrepreneurs (Berner et al., 2012). They are the sapphire traders.

8.4 Women Sapphire Traders in Madagascar: Survival and Growth Entrepreneurs

Institutional work in these contexts "goes beyond new ways of doing things to new ways of seeing things" (Martí & Mair, 2009, p. 93). This new kind of institutional work is characterised by small steps and engaging in experimental projects, working behind the scenes to challenge myths, and cultural traditions and building provisional institutions (Martí & Mair, 2009).

The women traders who sell sapphires and other gemstones have achieved a greater level of economic and personal empowerment than the women miners. Three women in my sample had become quarry managers, something unusual given the local informal institutions governing gender. The unique nature of these women's work is also notable on a global scale because selling rough stones is mostly reserved for men in large gemstone-producing countries

(Canavesio, 2013) such as in South Asia. They can be classed as survival entrepreneurs or, for example, in the case of the quarry owners, growth-oriented entrepreneurs (Berner et al., 2012). They use entrepreneurial logics such as accumulation of funds and stock management. They also risk their assets, for example, investing the proceeds of a large gem to buy stock and carefully allocating factors of production. However, their work is hampered by a range of institutional factors and structural inequalities resulting in similar gender asymmetries to those faced by female miners. This section considers first the challenges faced and then the opportunities available to women traders to be empowered from their trade.

8.4.1 Challenges for Traders

Viewed from a GVC and GPN perspective, it is clear that the sapphire trade of this region is controlled by informal agreements and local-level dynamics maintained by a strict hierarchy of powerful foreign traders, selected Malagasy middlemen, and in some case the privileged Malagasy wives of traders. A large part of the value of the sapphires, for example, the larger gem quality stones is captured in these vertical nodes. Women traders do not have the language, the time, the means, the opportunity, or the capacity to take any position of decision making or influence in these nodes. All local miners and traders are impacted by these oppressive conditions but women face an extra layer of complex challenges. Women traders are excluded from this hierarchy for structural and systemic reasons. For example, women work as a group and are often seen sitting together sharing resources and support. While this is certainly a strength, it may also disadvantage them in terms of learning more about their products and sales techniques. Some studies of women entrepreneurs suggest that such single sex networks may exclude them from the valuable informal networks of information available in male networks (Brush, 1992).

Lack of finance and intermediaries

Women traders have no access to loans, finance, or any form of institutional support. They report having to sell their most precious stock at a low price just to survive. They have no capital and no access to finance and financial networks. Such gender-related restrictions to finance are common for female entrepreneurs globally (Brush, 2006). Similarly, women entrepreneurs are often excluded from financial networks. Research by the Diana Project found less than 10 per cent of all people in the venture capital industry were female and that this lack of women in the networks could be viewed as a structural barrier (Brush, Carter, Gatewood, Greene, & Hart, 2004). In contrast, the male Sri Lankan traders have rich informal networks of

information and ready capital that can finance their transactions with a single phone call. Most importantly women sapphire traders do not have partnerships or relationships with international intermediaries that could enable them to market and develop their products (Manning & Vavilov, 2019; Martí & Mair, 2009).

Structural barriers, lack of skills, and equipment

A crucial structural disadvantage facing women traders is their lack of education. Many of the women traders are neither literate nor numerate, they cannot access independent information about sapphires, and they are unable to correctly value their materials. Globally, illiteracy significantly limits women's ability to become self-employed (Welter, Brush, & de Bruin, 2014). In one of the few studies of women mineral traders in Africa, Hinton (2016) notes women traders of minerals and their daughters are held back by their lack of negotiating skills, their knowledge of how to value minerals, and their time deficit. This is echoed in Madagascar where, without product knowledge and negotiation skills, women are easily manipulated and bullied by foreign traders and middlemen. In addition, women traders have few of the basic resources required for a trader in precious stones, such as tools, scales, a torch, transport, a phone, or Internet. This limits their credibility when interacting with foreign traders.

Such disadvantage also leaves women traders open to a beholden "co-dependent relationship between business actors that is social, durable and in which power is situationally determined by actors" (Haugen, 2018, p. 321). Such unregulated 'beholden value' creates a prime opportunity for the exploitation of women traders, trapping them into the need to maintain personal patronage relationships (Wood, 2003) which may limit their capacity to grow their business, "staying secure [but] staying poor" (p. 455).

Occupational segregation, local gender norms, and social structures

Local culture, traditions, and systemic gender inequity underpin and reinforce the structural and systemic disadvantage mentioned in the previous section. For example, women accumulate in the small stone section rather than the more lucrative large stone sector, sometimes by choice but more often because of cultural norms that dictate that only small stones are for women. There are persistent, pervasive, and limiting cultural norms which control women's access to markets and personal and financial freedom. Liberal feminism argues that social structures such as "occupational segregation limit women's ability to gain experience in certain sectors" (Welter et al., 2014, p. 8). In this context, such segregation diminishes women's capacity to

gain broader experience, to take positions of leadership in decision making about the future of the industry, and to grow their business beyond the town itself.

Time poverty

Feminist political economists argue that across the value chain, women stand at the crossroads between the economic and the societal spheres, especially when they engage in both paid work and caring for human beings (Sen, 1995, in Barrientos, 2019, p. 90). Women traders bear a disproportionate share of family work, and like the women miners they juggle their work with a high burden of unpaid work. The extra burden means they are less mobile when it comes to pursuing new sources and markets and they have less time to devote to trading. They also have less time and opportunities to learn from others about how to work effectively and negotiate. A recent quantitative study in Tanzania found that time constraints were a significant determinant of the efficacy of training. Interventions that only targeted business ability and credit constraints were not sufficient to raise the entrepreneurial outcomes of female entrepreneurs who were time constrained (Berge & Pires, 2019, p. 1).

Overlapping disadvantage

For women sapphire traders, it is possible to see the intersection and overlapping nature of disadvantage where poverty, gender, status and lack of language, education, and skill overlap. Quantitative studies of women in poverty suggest that it is this intersection of different types of inequalities “that overlap, reinforce and exacerbate each other, that explain some of the most acute forms of disadvantage” (Kabeer, 2015, p. 194).

As one trader told me: “Men have money and can talk to foreigners, only a few women can speak, only those married to Malagasy bosses” (Stakeholder interview, 2015). This reflects an acute awareness of her lack of skill and poverty. The reference to a lack of language to speak to traders, hints at the power that literacy, language, and negotiation gives. Without the opportunity to speak or the skills to negotiate, make decisions, or the capacity to influence, these women cannot significantly grow their business beyond survival entrepreneurship. Patriarchal norms persist, with the only way to acquire such skills being through sexual relationship. Even here, the trader’s male partners may collude with the foreign trader to get their own cut of the women’s stones.

These oppressive patriarchal norms are maintained by some women traders and their partners. These barriers reflect both the lack of opportunities for professional education and the persistence of gender norms, which disadvantage women at many levels.

Institutional failure and voids filled by foreign traders

In emerging economies such as Madagascar, the inability of the state to provide education and other basic services especially in regional areas “goes hand in hand with institutional deficiencies which can be conceptualised as institutional voids” (Manning & Vavilov, 2019, p. 4). These voids include various institutional hindrances to the way buyers and sellers interact (Doh, Rodrigues, Saka-Helmhout, & Makhija, 2017). In Madagascar, these voids have resulted in the corruption of the gemstone sector with, “excessive rents to a few actors” (Manning & Vavilov, 2019, p. 4) and the exclusion of many actors from full market participation (Mair, Martí, & Ventresca, 2012).

In this remote but resource rich region, there is no official market place or any guidance about price or industry standards for the stones. Effective government oversight is missing and there is no Ministry of Mines office in these towns despite the vast sums in value and cash that have flowed through these towns since 1998 (World Bank, 2012). Government policy and institutions are, at best, inefficient and incongruent or, at worst, corrupt. This has created institutional voids that have enabled the marketplace to be dominated and controlled by foreign traders. A hierarchy of Malagasy middlemen support the oligopoly imposed by the Sri Lankan and Thai traders who engage in cynical price fixing and misinformation about the stones, manipulating the market, and the miners and traders who wish to sell their stones. It can be argued that such voids have permitted the growth of informal groups, such as the women traders, and the opportunity for them to operate without any restrictions (Mair et al., 2007). However, the abandonment of the sector by the authorities means that an opportunity has been missed to generate and use rents to improve the overall level of local economic development for these women and to provide them with market support and long-term business and value addition strategies.

In the following section, I examine the opportunities women traders have had to find empowerment through place, the use of entrepreneurial logic, access to factors of production customer knowledge, stocking, and specialisation and association.

8.4.2 Opportunities for Women Traders

The empowerment of place

Canavesio (2013) has argued that the pioneering frontier climate of the sapphire fields has provided a unique enabling and empowering environment for women traders as it has the miners.

The fact that women are accepted in this generally male-dominated trade shows that the cultural brakes on women's freedom of enterprise in the rest of the country ... are greatly weakened in the mining frontier towns.... In fact, all the economic and social codes are changed ... they have access to a significantly better economic situation, as well as a very high level of independence. (Canavesio, 2013, p. 15; author's translation)

My research was conducted 10 years after the work of Canavesio, and the sapphire towns had by then become home to the women traders he refers to. The results of my research do not dispute Canavesio's findings about the egalitarian, enabling environment and the personal freedom and empowerment a number of women have found, particularly when compared to the poverty and lack of opportunities in their home region. However, the gains and accumulation are modest compared with the foreign traders who surround them.

These modest gains are also the result of the entrepreneurial effort female traders have made.

Entrepreneurial logic

The women sapphire traders studied in this research use logics which are clearly entrepreneurial. They take risks with their own assets and allocate factors of production, those "resources required to make economic goods" (Law, 2018, p. 92) available to them. They make decisions about their factors of production, their stock, labour, and capital (perhaps in the form of a valuable stone or parcel of stones). They apply their knowledge to their business (Berner et al., 2012). The traders who have upgraded to become successful quarry managers, giving themselves direct access to the stones, have many of the characteristics of growth entrepreneurs (Table 6). Their entrepreneurial logic is different from the survivalist entrepreneurs because of their willingness to take risks, their specialist activity, and their ability to accumulate.

Access to natural resources

The traders' access to natural resources is their most basic factor of production (Law, 2018) and the key to their success. The women traders have mostly come from mining backgrounds and have developed a good sourcing strategy, buying small rough sapphires directly from the quarries, leveraging their relationships with those in the mines, in particular other women miners. Horizontal linkages (McQuilken & Hilson, 2018) with other women at the mine sites, or small-scale male traders, mean that they also have easy access to large quantities of small brightly coloured rough sapphire. The value of this resource has been overlooked by more

powerful actors and these women may have found a particular niche product and potential market.

Customer knowledge, stocking, and specialisation

Customer knowledge, stocking, and specialisation are characteristics of successful entrepreneurship (Berner et al., 2012). These characteristics can be seen in the traders as they apply the business knowledge they have to create financial resources by sorting, packaging, and selling their stones in order to buy more stones. The traders' stories are characterised by the strategies they use to sell their stones and a level of satisfaction and strength they have found in this work. Some have a diversified strategy of selling silver or soft drinks if sales of gemstones are down.

Working together and learning from each other

Research has found that women entrepreneurs “draw on their strong ties more than men and exhibit a high degree of place embeddedness” (Welter et al., 2014, p. 11) often living close to relatives. This is true for the sapphire traders who have settled in the mining towns and now do not wish to leave. They are closely connected to clan groups in these towns and a strength and opportunity for these traders is in their relationships and their capacity to draw benefit from working with others. They have learnt their trade from family members and, away from home, they work together and support each other. Two women's groups were identified, one was mainly for social support of ‘women far from home’, and the other group shared profits and resources.

State failure, institutional voids, and corruption: An opportunity for women

The Malagasy state has failed to regulate the small-scale mining sector, it has failed to provide a central buying centre for the stones, and it has failed to provide any professional development such as extension services that could improve the efficiency and the health and safety of women's mining activity. This has created an unregulated space and institutional voids that have permitted the control of mines and trade by foreign buyers. The supply chain is also fragmented and lacking in transparency. This has meant that the contribution of small-scale mining to the economy has been minimal in terms of tax collected or value addition (International Institute for Sustainable Development [IISD], 2015).

However, this unregulated space has also provided opportunities for women to exploit these institutional voids and to establish themselves as miners and traders. They have found a way

to make a living from the small stones left behind by male miners and foreign traders. It is possible to see women miners and traders as creating new work in “new sectors [that] operate in entrepreneurial ecosystems which have institutional voids” (Gómez et al., 2020, p. 197).




In the next section, I will examine the opportunities and challenges to women’s empowerment in the global gem hub of Thailand when value is added to gemstones including Malagasy sapphires.

8.5 Thailand: Adding Value to Africa’s Treasure, Empowerment Opportunities for Some

Following the Madagascar sapphire value chain downstream to Thailand, I explored the role of women in one of the world’s major hub for gems and jewellery (GIT, 2017). An estimated 80 per cent of the sapphires worked in Thailand are from Madagascar, making Thailand a vital node in the sapphire value chain. In this thriving gem and jewellery ecosystem, some value is captured through Thai skills in lapidary and jewellery-making, but the greatest value addition is the result of trade networks and marketing within the Thai business node of the value chain in Bangkok and other gem regions. The dynamic character of the industry and its preeminent position in the value chain has been leveraged from its traditional position at the centre of the gem trade (Roy Chowdhury & Abid, 2018; Shor & Weldon, 2009) with the help of powerful institutional backers. The industry has been “extremely effective in securing forceful political expression of their needs and goals” (Scott, 1994, p. 249).

Thai women play a significant role in the sapphire and gemstone industry at many levels and they have many more opportunities for empowerment here than women in the Malagasy nodes of the value chain for two reasons. Firstly, as can be seen in Box 4, at this node of the value chain, there is the greatest value addition and there are many opportunities for all to participate in this thriving gem and jewellery industry that employs over 900,000 workers. The prosperous ecosystem in which the industry operates, provides opportunities for women such as education and personal growth. Secondly, Thai women are relatively free to participate at all levels of the industry; they make up 45.7 per cent of employees in the formal economy (World Bank, 2018a) and there are many more in the informal economy. This contrasts strongly with India, Thailand’s closest competitor in the gem industry, where the female labour force participation fell from 35 per cent in 1990 to 27 per cent in 2018 (Smriti, 2019), with very few women in gem processing or sales (WHWB, n.d.).

Box 4 Example of Value Addition for Malagasy Woman’s Stone

<p>A woman trader buys a stone from a woman miner for USD 1</p>	
	
<p>The stone is sold to a Thai buyer in Madagascar for USD 5</p>	<p>500% increase</p>
	
<p>In Thailand the stone is sold on for USD 15</p>	<p>300% increase</p>
<p>The stone is cut and polished at a cost of USD 2–3</p>	
	
<p>The stone is sold to a western buyer for USD 100</p>	<p>More than 650% increase</p>

Note: This is based on estimates from local and international traders and does not account for the fact that most stones, except for large, very valuable pieces, are sold as parcels of rough stones.

Source: Author.

The following section will first examine some of the challenges to empowerment women in the Thai gemstone industry face in factories and in home-based work and also some of the other cultural constraints that inhibit their entrepreneurship. This will be followed by a

consideration of opportunities for economic but also personal empowerment, that Thai women can achieve in an ecosystem strongly supported by education and government policy.

8.5.1 Challenges to Empowerment

Inequality in factories

Factory work, often supplying multinational GVCs, has provided a vital source of income for many Thai women, particularly from the poorer rural areas of the northeast (Mills, 1999). The work they do is an example of the contradictory empowerment and disempowerment of the work offered globally to women in GVCs. Generally, Barrientos (2019) has called this work in GVCs the ‘low road’ to development, with women concentrated in low-wage, labour-intensive production which is flexible and insecure (Barrientos, 2019) but that provides income and some economic freedom.

Working conditions for women in Thai gem and jewellery factories will vary from comfortable and family-friendly in some of the large firms like Pranda (2018) and Pandora (2019), where women do reach positions of leadership, to the many factories where women suffer the gender inequities Barrientos (2019) has described in GVCs globally. Finding work in a factory does disrupt gender norms and gives many women workers, particularly in rural areas, greater economic independence. However, gender discrimination is systemic (Mills, 2003) with women earning less than men, rarely attaining management positions, and suffering sexual harassment. Gendered norms around the type of work women can and cannot do perpetuate inequality, for example, in factories where women are found in the lowest paid categories and men are found in managerial roles (Barrientos, 2019; Mills, 2003). Although there are examples of social upgrading for women in factory work (IFC, 2013), value chain participation can too often recreate gendered subordination in the commercial sphere (Dunaway, 2013).

Home-based work

Probably the greatest challenges facing women in the Thai portion of this GVC are the work conditions experienced by the many thousands of women engaged at the lower end of the cutting and polishing sector, those working in factories and cottage industries close to gem hubs (Cross et al., 2010; HomeNet Thailand, 2012). The disadvantage is particularly acute for women in the informal sector working at home, despite the fact that these skilled craftswomen have provided a steady supply of finely cut and polished stones to the Thai industry. They receive very little remuneration, and they report bullying, intimidation, and occupational injuries, particularly to their eyes (Cross et al., 2010; HomeNet Thailand, 2012).

Barrientos (2019) argues that the growth of women's home-based work, like that of these gemstone cutters, has been based on the commercialisation of many activities previously undertaken, unpaid, by women in the home. This has helped to draw women into fragmented paid work where there is a blurring of traditional gendered boundaries between paid work in commercial production and unpaid work within households (Barrientos, 2019, p. 54). Feminist political economic thinking provides insights into the gender implications of blurring the boundaries between commercial production in factories and farms and social reproduction within households. Too often, "value creation, enhancement and capture are underpinned by the social undervaluation of work and skills traditionally undertaken by women, allowing goods to be produced cheaply and enhancing value capture by suppliers and lead firms" (Barrientos, 2019, p. 80) at the expense of women's empowerment. This seems to be the case for some Thai cutters.

Structures of constraint in women's entrepreneurship

The persistence of what Ahl (2006) calls an 'invisible masculinity' in entrepreneurship can be seen in the accounts of the women trying to set up their own business without strong family support. Female gemstone business owners reported encountering forms of sexism and bullying at work and when they were trying to purchase rough material in the field.

In my interviews, I found women working in offices in Bangkok, who, despite having deep levels of knowledge of gemmology, reported lacking the confidence to become entrepreneurs and start their own business in the way that their males colleagues had done. Such a lack of confidence among female entrepreneurs is closely related to their entrepreneurial identity and self-efficacy (Greene & Brush, 2018). Lack of confidence may be the result of women entrepreneurs feeling they have to conform to images of male entrepreneurship, which are typically associated with taking large financial risks and male-dominated networks who wish to grow fast. Women without this aggressive entrepreneurial approach, who wish to grow steadily and slowly and who may be more "people focussed" (Orlandi, 2017, p. 493), can experience "identity conflict" (Greene & Brush, 2018, p. 11) and lose confidence in their capacity to start a business. This is the case with some of the Thai women interviewed. Another factor discouraging Thai women from becoming gemstone entrepreneurs is the same time asymmetry noted for Malagasy women. It results from their disproportionate share of unpaid family duties (Kabeer, 2015). Gender norms dictate that this 'reproductive tax' (Palmer, 1992) is less likely to apply to men who are thus free to build business networks and accumulate capital.

Another form of disempowerment results from the constraints and prejudices society and women place on themselves. Some women reported excluding themselves from skilled work in the gold smithing industry because of a subtler form of sexist and racist discrimination—the equation of pale skin with beauty and power (Vorng, 2017). Highly skilled female goldsmiths, trained in the royal school, discontinued their work for fear it would damage their appearance, darken their skin, and make them a less attractive romantic partner.

8.5.2 Opportunities

Compared with Madagascar, women working in this node of the value chain, have many opportunities for empowerment both economic and personal. Thai women can achieve high levels of education and academic success, skills in design and artisanship, and business ownership. The Thai gem and jewellery ecosystem has been strengthened by its university and government sectors and by mentoring, both these are vital pillars of the EE (WEF, 2013) for women.

Education and mentoring

Women's empowerment in this value chain is enabled by the low fees in Bangkok's public universities. This opens up to many Thai women the opportunity to study a wide range of subjects related to the science, art, and commerce of gemstones. A significant number of women working in Thai universities are global academic leaders in the science of gemstones and now teach and mentor the next generation of scientists (Phlayrahan et al., in press). These activities provide not only a level of economic freedom but also personal satisfaction, education, and work as a pathway to personal empowerment (Cornwall & Edwards, 2014). There are a number of powerful women in academe, business, and the GIT who hold considerable convening power and influence and take an active role in mentoring young women entering the industry. This is a crucial factor in women's empowerment and professional development and in developing an EE (Spigel, 2017; Spigel & Harrison, 2018).

Well-established industry supported by the government

Women benefit from the well-established nature of the Thai gem and jewellery ecosystem and its historic position at the centre of the coloured gemstone industry in South East Asia. The Thai portion of the value chain is heavily supported by powerful institutions from the Thai royal family, in particular HRH Queen Sirikit, to government organisations such as the Board of Investment, and numerous institutes and universities have been “extremely effective in

securing forceful political expression of their needs and goals ” (Scott, 1994, p. 249). This established industry, supported by the government, provides opportunities for women.

8.6 Factors That Empower Women

How do the dynamics of people, process, and place nurture entrepreneurial behaviour? (Audretsch et al., 2018, p. 471)

In this section, I shall draw together the main learnings from this research by examining some of the factors that have empowered women both economically and personally as they work in the gemstone supply chain. After Audretsch et al.’s (2018) work on EEs, I will consider how place, people, and processes have enabled and nurtured women’s empowerment and entrepreneurial behaviour. I will also reference GVC/GPN theory (Barrientos, 2019; Gereffi, 2018) as it provides insight into how economic actors, in this case women in the gemstone value chain, “create and capture value by taking advantage of geographic differences in costs, factor endowments, regulatory frameworks and consumer bases” (Gereffi, 2010, p. 168).

Context is a vital element of understanding entrepreneurial endeavour (Audretsch et al., 2018). For this reason, I integrate into this discussion of factors that empower women, particularly in Madagascar, research and theory grounded in informal contexts of poverty (Berner et al., 2012; Gómez et al., 2020) in regions characterised by resource constraints and institutional voids (Manning & Vavilov, 2019). This is supported by Pathak’s research, which concluded that individual factors affecting women’s entrepreneurship should be considered within the larger cultural context (Pathak, Goltz, & Buche, 2013).

8.6.1 Place

Geological endowment and women’s work

In economic and mineral economic terms (Kesler & Simon, 2015), the first factor of production that empower the women miners and traders in this value chain is the geological endowment of the region. “The geologic and geomorphic expressions of a mineral deposit, determine its location, size, and accessibility, characteristics which in turn greatly influence the success of artisan’s mining” (Malpeli & Chirico, 2013, p. 43). There are specific gendered dynamics related to geomorphology that control the type of mining activity women can do (Hausermann et al., 2018; Hinton, 2016). The rich alluvial sapphire deposits discovered in southwest Madagascar in the late 1990s are still highly prospective (Pardieu et al., 2017) and accessible to women through processing of gem-bearing gravel and surface mining.

A second factor of production is the relative freedom women have to work in the mining frontier towns in southwest Madagascar (Canavesio, 2013). Money can be made in return for labour that these, mostly agricultural women, are able to do. Strong gender norms still restrict women's access to the bigger stones and potentially more lucrative underground deposits but women have control over the mining and sale of small sapphires. This pattern of exploitation is supported by the work of Malpeli & Chirico (2013) who found that in the extraction of high value products, men have greater control over the site, while women have greater control of the land and more involvement in decision-making processes in the extraction of low-yield commodities. The case of the small Malagasy sapphires is interesting as they are considered low yield, low value commodities by the men; however, my value chain research suggests that with appropriate marketing and processing, the value and appreciation of these small, precious stones could change, and their full value be better captured by early actors in the supply chain. Women are able to access this opportunity for empowerment because of low barriers to entry. The Malagasy culture also does not prevent women from working shoulder to shoulder with men, although it may have been restrictive about women's direct access to larger deposits underground. Lack of regulation has created institutional voids and in this uncontrolled, informal, and unregulated space, women have been permitted to operate freely (Mair et al., 2007).

Public and private partnerships for industry development

In Thailand, the geological factors of production, the sapphire and ruby mines of Thailand and bordering countries are depleted, and women are empowered, not by access to raw materials but by access to the thriving Thai gemstone ecosystem (Shor & Weldon, 2009; Spigel, 2017; Spigel & Harrison, 2018). This ecosystem has drawn on rich regional and now global deposits of ruby and sapphire (Hughes, 2017), and initially, at least, upon the large reserves of cheap labour available in Thailand, to become a global hub for coloured gems and jewellery. The growth of this ecosystem, which has permitted Thailand to become a global leader over the 1980's, has been the result of forceful institutional policy. The Thai government programme of industrialization aggressively fostered the internationalization of the Thai economy (Scott, 1995). Another factor has been successful public–private collaboration such as those in the Thai Gem and Jewellery Traders Association, the main industry association in Thailand (Scott, 1995). Policy such as the progressive elimination of import duty on all the inputs (including machinery):

[D]irectly sparked off the gem and jewellery industry boom in Thailand over the 1980s ... providing large incursion of foreign capital and foreign entrepreneurs into the Thai gem and jewellery industry. (Scott, 1995, p. 255)

The gem industry clusters in the capital (Scott, 1995) and the regional gemstone hubs have generally welcomed and enabled women's commercial activity. Women can learn the trade and participate in commerce and marketing as well as creative and skilled activities in stone polishing and jewellery-making. For example, the level of sophisticated product knowledge demonstrated by women interviewed for the Thai case study is in part due to education opportunities they received from higher education and professional development activity available in the vibrant Thai gem and jewellery ecosystem.

Thai entrepreneurial ecosystem

The Thai EE has provided a multi-institutional framework, including universities, government (vital for the regulation of the sector), partnerships, and intermediaries, as well as sources of finance and markets that have enabled Thai women in the industry. Women benefit from extensive institutional support for the industry from government, private sector, and royal patronage. Publicly funded universities offer higher education programmes that enable women to study gemmology, design, and do business at the highest levels. The role of universities in fostering EEs is well recognised (Audretsch, 2014). In the Thai case, universities have provided skilled staff for the business of gem certification, for design, sophisticated cutting and polishing, and for business development. Business and royal sponsorship are empowering for young women, for example, the three-year apprenticeship offered to 150 young women from poor rural areas annually by Thailand's largest gem and jewellery firm. The royal family is the patron for prestigious gold smithing programme in which women are welcome. Powerful institutional arrangements and patronage support the Thai industry, which is in stark contrast to the absence of any disinterested patronage in Madagascar.

8.6.2 People

Closely linked to place are the people who contribute to women's empowerment in this industry, for example, co-workers' families and, in Thailand, the teachers and mentors and those who have been empowering women's development in this value chain. In understanding the factors that empower women, GPN theory highlights the importance of the 'horizontalness' of network nodes where value is created through people. An example is when women miners rent their spades and sieves to other miners, or women traders who sell their small stones to

other women or share their scales and torches. These “horizontal networks reveal the people and informal processes that determine value, dictating whose hands the [sapphires] pass through in the various nodes of the production network” (McQuilken & Hilson, 2018, p. 999). Madagascar’s long history with gems and the strong bonds among female family members, create horizontal networks whereby many women miners are taught how to mine and trade gem stones by other miners in the family. Family ties as enablers of value creation are not often documented in GPNs (for example, no mention is made in McQuilken & Hilson, 2018), yet in my research, family plays a vital role in transmitting knowledge especially among the miners. In a similar way in a number of Thai and Malagasy life stories, it is women’s early experience of gemstones with family that sparked their interest in working with gemstones in the early nodes as miners and traders but also in the Thai women’s work as highly trained gemmology academics.

Social capital

The role of family is better accommodated as a factor of growth in EE theory (Isenberg, 2011) and is viewed as an important element of the informal relations contributing to the cultivation of entrepreneurial-friendly environments (Sperber & Linder, 2019). A significant difference between male and female entrepreneurs globally is that family/household context and societal structures tend to have a stronger influence on women than men (Brush, de Bruin, & Welter, 2009). This is supported by data from women traders in this research in both Madagascar and Thailand.

In Thailand, the role of family knowledge is strong, with women taught about the industry by family who have worked in Thailand’s mature gemstone industry. In Thailand, family plays a particularly strong role in regulating business and empowering family members, both male and female. For example:

In Bangkok, the ethnic Chinese traditionally organise their businesses into networks of different firms each run by a family member who holds shares in every other firm in the network [covering] different sub-sectors, such as manufacturing, wholesale trade, retailing, commercial real estate. Several of the largest and most powerful gem and jewellery industrial groups in Bangkok are organised in precisely this way. (Scott, 1994, p. 259)

Mentoring and friendship from other women has also been an important enabler of women’s empowerment. WEF (2013) and Spigel (2017) highlight mentoring, advising, and peer networking as critical components of social capital within EEs (Neumeyer et al., 2019). This

is reflected in my research, it could be as simple as two women working together in the streams in Madagascar or it could be at the highest intellectual level, academic supervisors enabling their female students to do further study abroad and business leaders mentoring and supporting women business owners in Bangkok's JTC.

Manning and Vavilov (2019) have demonstrated the empowering impact for social enterprises of what they call "transnational entrepreneurial ecosystem actors" (p. 2) such as international NGOs, universities, and foundations, particularly when faced with constraining formal and informal institutions. In Madagascar, critical support in capital and capacity building has come from German Aid, the Australian Department of Foreign Affairs and Trade, and Tiffany & Co. Foundation.

Above all, women have been empowered by their own agency, institutional work, passion, and commitment. Significant institutional work has been done by the Thai and the Malagasy women traders: both have overcome misogynistic constraints to establish their businesses. Their work involves small steps and experimenting with different income streams (Martí & Mair, 2009). Institutional support such as the Malagasy women's groups and support from management of the Bangkok JTC have been important empowering factors sustaining and nurturing female entrepreneurship.

8.6.3 Process and Business Strategy

Another factor which has empowered women traders in this research is their business strategy and passion for their product. Even at the survival end of the value chain in Madagascar, women have learnt simple strategies for accumulating value through product differentiation, packaging, and economy. Some are focussed on survival but others are growth-oriented entrepreneurs using a clear business logic: "They risk their own assets and independently allocate factors of production, apply their knowledge to their business and make decisions about stocking" (Berner et al., 2012, p. 384).

In the Thai node of the value chain, women traders in the JTC are fully fledged entrepreneurs using a growth-oriented business logic (Berner et al., 2012). They use sophisticated, industry informed strategies that are clearly oriented to growth and specialisation.

All the women I interviewed were passionate about their work with coloured gemstones showing that the industry had provided them with personal satisfaction and empowerment. None wished to leave their trade. However, for the Malagasy women miners and traders, being able to provide for themselves was in itself the most empowering factor, particularly for those at the survival end of the value chain. As research by Blumberg (1988) found, when women

gain control over their income, this leads to increased self-esteem and further empowerment due to their increased autonomy and sense of self-efficacy. Strong self-efficacy combined with passion for the industry are hallmarks of successful female entrepreneurs (Dalborg & Wincent, 2015).

8.7 Is Formalisation the Best Way Forward?

The second research question I have addressed is:

How and why would keeping some part of the gemstones supply chain in the informal sector be beneficial to women?

One response to the inequity and poor conditions in the value chains of ASM minerals that is being championed by the OECD, UNECA, the African Mining Vision, and even some miners themselves (Mosi-oa-Tunya, 2018), is to formalise the value chain and the role of women in it. In a recent paper on the SDGs and ASM, Hilson and Maconachie (2019) have argued that formalising ASM would meet a number of the SDG goals including women's empowerment. They also acknowledge the complexity of the issue: "[F]ormalising and supporting ASM is not necessarily a direct and fully-replicable means for empowering women in these, and other, environments. But it is a step in the right direction" (p. 12).

In this thesis, I argue that from a feminist perspective, that formalisation is likely to disempower women who are working in the ASM value chain. A dualistic model which can only accommodate two settings, formal versus informal, will alienate those most in need of ASM work, that is, poor women.

Experience from both the GVCs for apparel and agriculture (Barrientos, 2019) and those working closely with ASM communities (Buss et al., 2019) strongly indicates that formalisation may further marginalise women. The main reason for this is that powerful elites will control such formalisation, disadvantaging women who are often not literate, have little experience speaking in public, and do not have the time to participate in lengthy stakeholder engagement activities that are likely to accompany the process. Formalisation, especially at the early stages of the value chain, is likely to lead to job losses among many vulnerable groups. As Chen (2012) argues 'simple' formalisation will not provide the informal actors with the benefits of the formal economy.

Recent literature reviewed for this research suggests that instead of a dichotomous choice between formal and informal, formalisation can better be seen as a continuum able to accommodate entrepreneurs who maintain varying levels of formality and informality (Gómez et al., 2020). For example, it can be seen as a hybrid mode, with formalisation as an

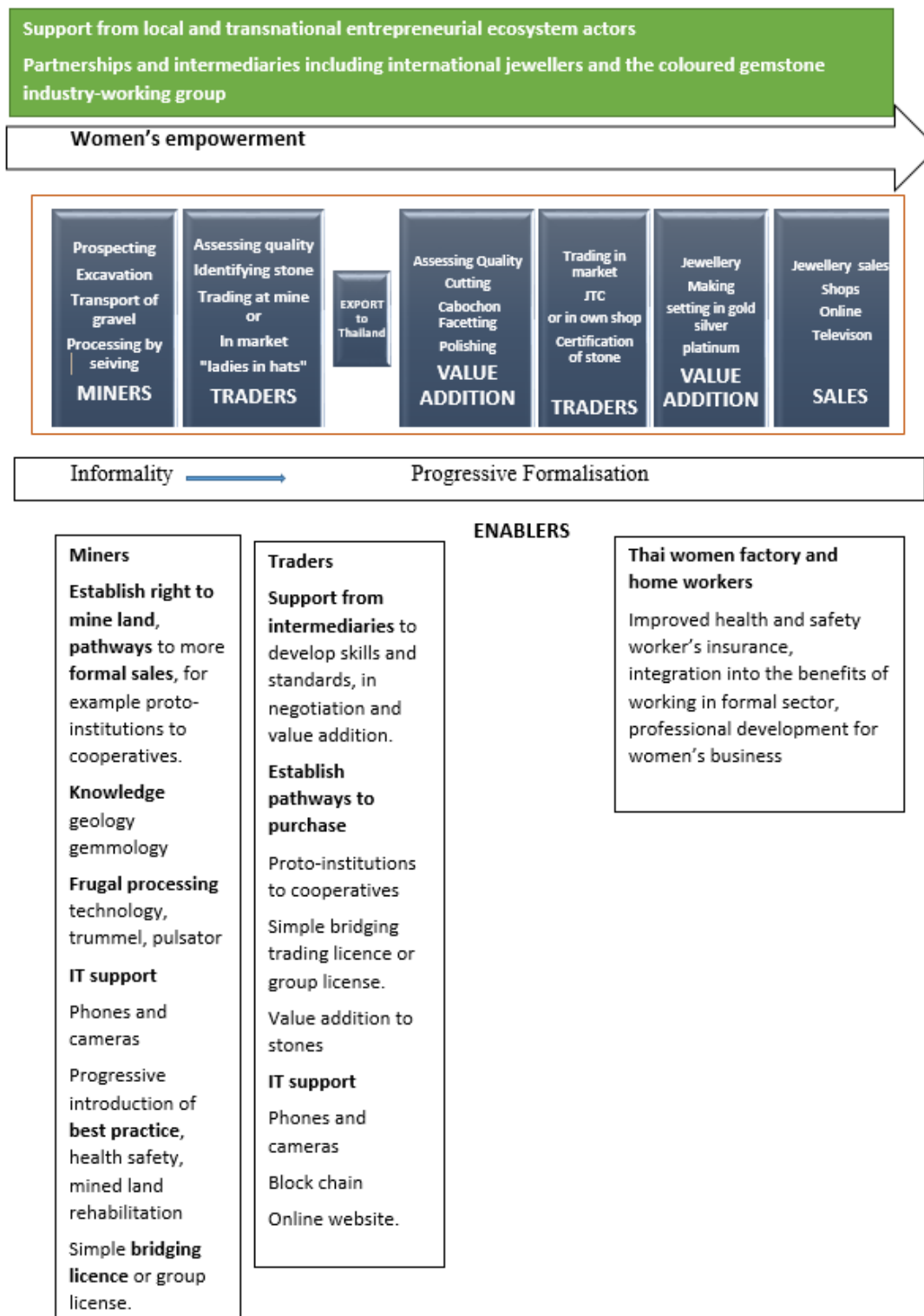
“entrepreneurial journey into institutional pluralism” (De Castro et al., 2014, p. 91). Informality need not hinder business growth and Gómez et al. (2020) argue the formal–informal continuum is a natural part of many EE domains. For example, in the domain of governance, growth entrepreneurs make strategic decisions to register part of their operation and not others (De Castro et al., 2014). In the finance domain, informal finance is a viable and sometimes a more effective option for business in the informal sector (Gómez et al., 2020). In India, for example, banks can finance some informal operations (Harriss-White, 2018).

There are, however, a number of strong cautionary notes which need to be made concerning this approach to integrating informal nodes into EEs. The hybrid model proposed by Gómez et al. (2020) is elaborated primarily for “ambitious entrepreneurs” in fairly prosperous economies (p. 193). Although the work of De Castro et al. (2014) is based in more challenging conditions for entrepreneurs in Latin America, the conditions in Madagascar are even more extreme. Closer to Madagascar’s situation are studies of informality in the handicraft industry in Kenya (Harris, 2014) and Cape Town (Fransen & Helmsing, 2016), which point out the institutional constraints of informality such as lack of education, location in poorly serviced areas, and the “highly dependent position of informal firms at the bottom of value chains” (Gómez et al., 2020, p. 195). This concurs with findings from this research which suggests that support from intermediaries and the enabling of finance will be a crucial determinant of progress for informal firms operating in ASM.

8.7.1 A Hybrid Formalisation Model

This research proposes a hybrid model of formalisation (Figure 10), which allows some degree of informality especially at the early stages of the value chain in Madagascar. This would protect women from being excluded from their only livelihood, while at the same time preparing them to contribute more fully in the future. It would enable time for a transition which takes into account institutions that marginalise women and curb their empowerment.

Figure 10 Model for Progressive Formalisation of Women’s Work in the Gemstone Value Chain Permitting a Level of Variety and Hybridity



Source: Author

As Fisher (2007) argued: “For the issue of marginality to be addressed within [formalisation] processes, the existence of local forms of organisation, institutions and relationships, which underpin inequalities and discrimination, need to be recognised” (p. 735).

The proposed model would also allow a space for activity which is not in the formal sector, but is not illegal. Many in rural areas do not see the value of the formal system in securing economic rights, especially when the formal system is weak and lacking any mechanisms of enforcement, as is the case in Madagascar. There are many “practical challenges [to] helping women access the legal protections in the formal system” (Hallward-Driemeier & Hassan, 2013, p. 23). A hybrid model allows time for the legal system to be established and women to become aware of their rights and responsibilities.

This can be a very challenging area for international donors who may not be able to work with informal legitimate actors because of the implied association with illegal actors. To address this, the model builds in the support of intermediaries to work together with nascent proto-institutions to enable the sector to develop. Priority would be given to basic literacy, gemmological and geological knowledge, negotiation skills, improved health, safety, and mineral processing rather than strict formalisation in the first instance.

As Gómez et al. (2020, p. 198) note:

The core question is not whether these ecosystems and firms can be formalised but what specific configuration of institutions leads to sustainable local economic development that eventually may become more formal.

8.7.2 Formalisation for Women Working in the Thai Industry

For women in the Thai nodes of the gemstone value chain, there is already a degree of formalisation in the industry. The formal sector is well established and regulated. However, a large proportion of the cutting and polishing of stones is still done in the informal sector in exploitative piece pay arrangements, with many women working in their homes or in poorly regulated factories. In these cases, there is a strong argument to introduce a carefully regulated process of formalisation, or at least some regularisation of the industry in terms of pay, conditions, and insurance. It is vital that this does not disempower women or strip them of their skilled profession.

In the light of these findings I will now reconsider some of the literature reviewed earlier in the thesis and the links that can be made to women’s empowerment in the gemstone value chain. I will also explore how this research makes a contribution to the literature and I will make suggestions for future research.

8.8 Contribution to Literature and Future Research

8.8.1 Management Literature

The application of the management literature, notably institutional theory and entrepreneurship, to complex value chains and industries in Africa and to the role of women, has, to date, been rare (Galdino et al., 2018). By examining women's participation in the gemstone value chain through the lenses of institutional and entrepreneurial theory, a number of new insights have been created to develop the theory and practice of empowerment for these women. Using institutional and entrepreneurial theory has provided fresh perspectives for reimagining the value chain and considering lives beyond extreme poverty for women in ASM.

Institutional voids, work, proto-institutions, and links to empowerment

The most valuable literature read for this research has demonstrated the way in which positive outcomes can be created for local ventures in conditions of informality and poverty. This literature theorised the business opportunities which can be found and nurtured in and around institutional voids (Martí & Mair, 2009; Mair et al., 2007; Mair, Marti & Ventresca, 2012;). This theory is valuable for understanding the informal sector and the entrepreneurial work of those living in poverty, however, these scholars have conducted very little research in Africa. From my fieldwork and review of the literature, a key area for further research concerns the challenge of doing business in Africa, especially in small-scale mining, in the presence of persistent institutional voids. These include the absence of market-supporting institutions, specialised intermediaries, and regulatory and contract-enforcing mechanisms (George et al., 2016, p. 377; Khanna & Palepu, 1997).

The concept of institutional work has been particularly helpful for this study. A contribution to theory from this research has been to link the concept of empowerment and institutional work. Bringing these two literatures together is generative, particularly in the methodology proposed by Lawrence for institutional work and the role of institutional entrepreneurs (Lawrence & Phillips, 2019). Progress towards women's empowerment especially in mineral value chains is retarded because of "insufficient progress on structural issues at the root of gender inequality" (United Nations Sustainable Development Goals Knowledge Platform, 2019, n.p.).

Future research and policy could develop a framework for change which connects empowerment and institutional theory, drawing specifically on Lawrence and Phillips's (2019) analysis of the purposeful, reflexive efforts of individuals, collective actors, and networks including discursive (linguistic), relational (social), and material (artifactual) dimensions.

Another related theoretical concept that has provided explanatory power for complex and fragile contexts such as those in this research, is that of proto-institutions or ‘institutions in the making’ (Lawrence et al., 2002). Proto-institutions can be found where there are institutional voids, that is, in situations where formal institutions are weak or absent. They are thus important elements of institutional work (Lawrence & Suddaby, 2006) and could be a vital part of creating a pathway to formalisation for women in the gemstone supply chain. To date, the concepts of proto-institutions and institutional work have received very little attention in literature concerning the African context. A contribution of this research is to draw attention to the explanatory power of proto-institutions in the complex context of ASM in Africa. Future research could examine proto-institutions which are emerging across the mineral value chain to answer research questions such as how and why proto-institutions could become fully fledged institutions through which women are empowered. Further research could also investigate the normative, structural, and organisational facets such proto-institutions need to be successful. The role of proto-institutions in enabling women to participate in the formalisation of their business is needed.

Despite the scale of entrepreneurship in the informal economy in Africa, there is a paucity of research which connects development, entrepreneurship, and management research, particularly for sub-Saharan Africa (Naudé, 2011), outside of South Africa (George et al., 2016). Recent scholars and practitioners argue that entrepreneurship and management research more broadly could be a vital element in the alleviation of extreme poverty (Galdino et al., 2018; George et al., 2016). Others have argued that Africa is similar to a large start-up with an estimated workforce of over 1 billion by 2040 (WEF, 2019). There is clearly a need for both applied and theoretical research to generate a better understanding of entrepreneurial opportunity (Dana & Ratten, 2017) but also to understand the most effective way to support promising entrepreneurship (Manning & Vavilov, 2019). Through this research I have how local entrepreneurs can be supported by intermediaries in transnational ecosystems (Manning & Vavilov, 2019) to work in and around institutional voids. These provide inspiration and practical models for practice in sub-Saharan Africa. For example, I have incorporated the role of intermediaries and transnational ecosystem players into a model for the progressive formalisation of the value chain (see Figure 9). Further research with critical, theoretically informed case analysis is needed in Africa, particularly of opportunities which are empowering of women, such as the 10,000 women growth fellowship (Goldman Sachs, 2019).

Entrepreneurship in the informal economy

Informality in business in sub-Saharan Africa is among the highest in the world, particularly among women and in small-scale mining (Galdino et al., 2018; Hilson et al., 2018b; McMullen, 2011). A contribution of this research has been to connect this context with the research and theory on economic informality generated by Harriss-White (2018) in India and De Castro et al. (2014) in the Dominican Republic. These researchers have highlighted the need to understand how informal entrepreneurs navigate different levels of institutional environments not just at a macro level but also at meso levels, in the community and in regions (De Castro et al., 2014). Work by Gómez et al. (2020) also provides a valuable demonstration of the way EEs can accommodate the informal economy incorporating different degrees of formality, which are conducive to business growth. Unfortunately, the SDGs do not engage with the substantive issues around informality in their aims or indicators (Hilson & Maconachie, 2019), despite the clear importance this issue has for SDG 8: ‘Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all’ (United Nations, 2019). There is a clear need for research into how to articulate SDGs and informality and to document progress through qualitative and quantitative studies which are informed by the theoretical literature such as that reviewed for this thesis.

Two areas are particularly in need of a more nuanced and research informed approach to informality. The first is the ASM sector, where governing institutions are currently pushing for the application of formalisation as a strict formal–informal dichotomy (Hilson et al., 2018b). There is little reference to the rich literature around hybrid institutional settings presented in the work of De Castro et al. (2014) and Harriss-White (2018), in connecting these two areas, my work has made both a practical and a theoretical contribution. The second area is the need for more GVC and GPN analysis of the value chains of ASM particularly in relation to women’s opportunities and empowerment.

Global Value Chains and Global Production Networks

While attention has been drawn to the importance of women in mineral value chains in international fora (OECD, 2019), this has been an under-theorised area. In this research, I have addressed this lacuna by highlighting the relevance of the research and theory on gender in GVCs and GPNs generated by Barrientos (2019) to the study of women in mineral value chains. Much can be learned from the experience of women’s empowerment in other rural value chains particularly the way in which formalisation and mechanisation have not always led to social upgrading. This research is one of the first published studies to apply a GVC

approach to the gem and jewellery value chain and consider how value is captured across the chain, not only in the country of extraction but also in the country of value addition. I have investigated African sapphires as they move from extraction, through the hands of traders, to the place of value addition in South East Asia. This has provided insight into how the gemstone value chain can “create and capture value by taking advantage of geographic differences in costs, factor endowments, regulatory frameworks and consumer bases” (Gereffi, 2010, p. 168). Applying theory in this way provides practical insights and uncovers opportunities for women’s empowerment to improve conditions for women in the value chain.

A practical and theoretical problem highlighted by this research is the need for GVC and GPN theory to be adapted for the informal sector. Aside from Phillips (2011) and Haugen (2018), few scholars have applied the GPN framework to informal industries. Recently its application to semi-formal diamond mining in Ghana (McQuilken & Hilson, 2018) has shown the usefulness of GPN analysis for uncovering valuable detail about the way the sector is organised, its rich array of actors, and the fluid interplay between the formal and informal sectors. GPN and GVC analysis could provide “the crucial information needed to inform the design of policies, laws and interventions” (Hilson & Maconachie, 2019, p. 1004) as the formalisation of small-scale mining moves up the international development agenda. In future research, the GPN framework also needs to accommodate the changing direction of global flows since traditional GVC’s North-South flows are being replaced with South-South flows. For example, China is now Africa’s largest trading partner (Haugen, 2018) and gemstone trading routes are also largely South-South. This is a rich area of research for GPN scholars and transnational partners.

Artisanal and Small-scale Mining

In this research, I have supported and extended Labonne’s (1996) very early observation that ASM can provide “an equal playing field for everyone, men and women alike” (p. 119), particularly in the rarely studied gemstone and Madagascar context. While there has been some research into women’s role in ASM, most of the research has been situated in West or Central Africa and has considered gold, 3Ts, and cobalt. Apart from the work of Canavesio (2013) and Smith (2015), this research is among the first to consider the role of women in ASM gemstone in detail. By using a feminist inspired research framing to conduct this research, I am responding to Jenkins’s (2014) concerns that the roles of women in ASM had not been analysed “from a gender and feminist perspective” (p. 331). I have extended the scope of feminist research into ASM by presenting a feminist critique of formalisation, drawing on the wide

range of institutional studies of informality to provide a new approach to formalisation, a hybrid progressive model (see Figure 9). While Buss et al. (2017, 2019) have also presented critiques of formalisation, they have not yet presented a model of formalisation that aims to empower women.

The push and pull factors drawing women into ASM have been documented in some detail (Hilson et al., 2018a; Jenkins, 2014). By conducting life history research among women who have lived in the sapphire region for many years, my research has generated some valuable data, not just about why women take up ASM but also about why they stay. I also provide insight into why and how they transition to become mineral traders. By analysing the work of traders in terms of business logics (Berner et al., 2012), new knowledge has been created that is important for both the theory and practice of women's roles in mineral value chains, insights going beyond push and pull factors.

In this research, I investigate the work lives of women as mineral traders in Madagascar and Thailand. This cross-country research using a GVC approach (Gereffi, 2018), is a major contribution of the research to the ASM literature. Prior to this, research has rarely gone beyond borders to follow women's role in the mineral value chain. This knowledge will be important in future institutional work to empower women in mineral value chains (OECD, 2019).

This research has generated qualitative data, future research in ASM gemstones and women's empowerment can draw on these insights to design quantitative analyses of the number of women engaged globally and more detail on the amount of value captured at each node of the mineral value chain.

During the course of this research, I have become aware of the need for a critical intersectional assessment (Djouidi et al., 2016), of the opportunities and challenges facing women's empowerment in ASM. Thus, in my research, I have increasingly attempted to go beyond the impact of male-female dichotomies to include the intersecting impacts of the political economy, power dynamics, and social institutions on women's opportunities for empowerment. A future area for research could be to consider women's ethnic group and their participation in associations and proto-institutions. Further, intersectional assessment is needed to better understand women's work and empowerment in ASM. For example, this research has uncovered the intersection of food insecurity, changing climate and women's adaptive behaviour in becoming miners and mineral traders, this warrants further investigation. The issue of climate change and ASM have not been previously explored in detail in the literature.

Other research areas to investigate are the impact of colonisation on women's empowerment in colonial times and the role of France in colonial and post colonial times in the sapphire trade and in particular.

Chapter summary and chapter conclusion

In this chapter I have discussed the principal findings of this research and framed my interpretation of these findings with a critical discussion of the meaning of empowerment for women. I have placed the voices of women workers at the centre of my research. Work life histories, which were particularly attentive to turning points, trajectories, sequences, and life events in the women's work lives (Giele & Elder, 1998), revealed the empowering impact working in this supply chain has had on many women's lives. Factors related to place, people, and process (O'Connor et al., 2018) empower women close to the mine sites in Madagascar and in Thailand, at the heart of the industry's value addition hub. However, systemic institutional and cultural barriers also constrain women's empowerment, particularly asymmetries of time and opportunity, access to better deposits, land, and finance.

I have introduced fresh perspectives from institutional and entrepreneurship theory and the GVC research to the work of women in the global gem and jewellery value chain. I have conceptualized some of the institutional work required to bring about further empowerment for women in the gemstone industry. Using business logics and perspectives from EEs has enabled a reimagining of some parts of the value chain for women, for example, recognising women traders as growth-oriented entrepreneurs risking their own assets, allocating factors of production, and applying their knowledge to their business (Berner et al., 2012).

Drawing on GVC and GPN theory in my analysis of the gemstone value chain has enabled me to document how value is created and captured along the value chain in Madagascar and Thailand and the work still needed to make the value chain more equitable and empowering for women. Following on from the work of Audretsch and Keilbach (2007) on knowledge spillover in EEs, I have emphasized the role of learning and knowledge in the gemstone value chain both for producers and consumers. As calls to formalise ASM increase, I have given a feminist critique of the formalisation process. I have proposed a model of formalisation which respects women, particularly the most vulnerable at the survival end of the value chain, with an opportunity to better understand the formalisation process and their rights and responsibilities within it.

Chapter 9

Conclusion

Chapter Overview

In this final chapter, I shall conclude by drawing together key learnings from the research in the light of current international standards, trends, insights from research, and the contribution of this research to our understanding of the role women play in the gemstone value chain. This will be followed by some recommendations regarding formalisation, creating, and strengthening partnerships and building knowledge for both women working in the supply chain and for consumers.

9.1 International Standards and Trends in the Face of Mechanisation

The coloured gemstone industry is burgeoning and worth at least USD 5 to 10 billion annually (Cartier, 2019). Interest is growing in non-diamond gems and fine, ‘new’ and unusual varieties of gemstone can command a high price. The industry is still largely driven by unregulated and informal ASM and government oversight and capture of benefits is weak (Shortell & Irwin, 2017). The challenge for regulators, civil society, and market institutions is to grow the industry while ensuring more of the rents return to the country, and environmental conditions and human rights, particularly of women and children, are respected (Moraes, Carrigan, Bosangit, Ferreira, & McGrath, 2017).

Women’s empowerment from this value chain will depend on how well they can leverage opportunities as the industry comes under pressure to lift the level of due diligence across its supply chains (for example, OECD, 2019) and cultivate transparent mineral supply chains which have higher standards of human rights and transparency. These demands on the industry are driven by market demand for responsibly sourced gemstones, especially among younger customers (Archuleta 2016; Shortell & Irwin, 2017) and regulators such as the United States Government (2019) and industry bodies such as the Responsible Jewellery Council (2019). This is particularly important in Madagascar where there has been no consistent effort to lift due diligence activity across the gemstone supply chain. Health and safety standards for women and the use of underage workers in mining tunnels are two clear examples where action could be taken. Institutional work and transformative leadership at a government level are also required to take action against corrupt practices that are common in the gemstone industry (Naylor, 2010).

There is also momentum to achieve better gender balance and women’s empowerment across the extractive sector (OECD, 2019) in both small and large-scale mining (BHP, 2019).

However, to drive women's empowerment across the industry will require institutional work, "purposive action of individuals and organisations aimed at creating, maintaining and disrupting institutions" (Lawrence et al., 2009, p. 10). In particular, I have highlighted the work of "institutional entrepreneurs", those actors who "[leverage] resources to create new institutions or transform existing ones" (Maguire et al., 2004, p. 657, in Lawrence & Phillips, 2019, p. 208).

The organisation, Women's Rights in Mining, a Dutch government collaboration with NGOs and CSOs, could be classed as an institutional entrepreneur. Its highlighting of women's rights in mining at the OECD Forum on Responsible Mineral Chains in 2019 is a form of institutional disruption (Lawrence & Phillips, 2019). However, such organisations must be vigilant not to lose sight of the least powerful women in their remit, for example, the women miners and traders who are the subject of this research. As institutional scholars like Martí & Mair (2009) note, much significant institutional work also occurs along the value chain with small steps by less powerful actors.

Calls to improve transparency and standards in the coloured gemstone industry are accompanied by moves among large players to upgrade the industry with the introduction of larger-scale operations. Technical innovation, mechanisation, and specialisation are growing at an unprecedented level (Shortell & Irwin, 2017). International experience in ASM has found that mechanisation tends to reduce the number of opportunities for the empowerment of women (Hinton, 2016). Gender norms tightly control women's access to valuable materials and the mechanical and more efficient means to extract them. Low levels of literacy also mean women may be excluded from learning to do more technical grading of stones such as controlled assaying of materials with microscopes and gemmological equipment.

Likewise, the introduction of large-scale mining of gemstones is also unlikely to empower women. Large-scale mining employs few women (BHP, 2019; BSR, 2017). In the global upscaling and mechanisation of agriculture and the growth of manufacturing for GVCs, Barrientos (2019) found that while more women may be employed, mechanisation tends to exclude women from the better-paid work and positions of power continue to be held by men. Women's work in large-scale GVCs tends to replicate the gender norms and structural inequality of the society where they are located and women can experience sexual harassment and few opportunities for promotion. Promoting women's participation *and* empowerment in a large-scale, formalised gemstone value chain activity will require institutional work and is a challenge for women's institutional entrepreneurs and NGOs such as Women's Rights in Mining.

9.2 Recognising and Understanding the Contribution of Women in Artisanal and Small-scale Mining and Gemstones

The opportunities and challenges for women in the ASM of gemstones in Madagascar had, until this research, rarely been considered by donors or local experts. The World Bank Mineral Resources Governance Project in Madagascar, which concluded in 2012 after spending over USD 40 million, hardly mentioned gender in its plans for ASM (World Bank, 2012). Women have typically been seen as secondary to men in the industry. In Thailand, even though women have played an active role at all stages of the industry, gender is still not considered in industry reports. In this feminist informed research, I have placed women's experiences and perspectives at the heart of the research problem and as a reference point (Harding, 1987). In giving voice to women across the gemstone supply chain, new and nuanced stories have been told, and they are characterised by diverse motivations and striking individual agency. Far from being passive helpers of men, women are doing institutional work and challenging norms around women's role in this industry, along with the legal constraints which keep them impoverished.

During the five-year course of this thesis, there has been an increasing amount of research work on women in small-scale mining (notably through the work of Bashwira et al., 2014). Apart from the work of Smith on Tanzanite (2015), gemstone mining rarely been considered. In this thesis, I enlarge the focus of such research by examining, for the first time, women's role in the gemstone trade across the strategically important Indian Ocean Rim (Jeffrey, 2019). I draw attention to the unique contribution of women mineral traders in Madagascar and Thailand and uncover the opportunities they have created for themselves and their families through their institutional work in overcoming challenges and the gendered norms that restrict their activity.

9.3 Reimagining the Role of Women in the Artisanal and Small-scale Mining Gemstone Supply Chain Using an Institutional and Entrepreneurial Perspective

In this research, I have attempted to challenge the view that limits women's work in ASM to the poorest and most vulnerable paying tasks in the value chain (Ferring & Hausermann, 2019) or that women "are better off outside the mining sector" (Bashwira et al., 2014, p. 112). As Tschakert (2009) argues, "the ASM sector needs to be reimagined to allow poor men and women to flourish" (p. 24). I have found that while the early stages of the value chain are marked by poverty, as women move up the value chain they are empowered both personally

and economically and the business logic they use moves from survival to entrepreneurship (Berner et al., 2012).

Institutional and entrepreneurial theory has provided fresh perspectives for reimagining the value chain and considering lives beyond extreme poverty for women in ASM. Institutional theory has enabled a more nuanced understanding of women's economic activity, for example, about where the boundary lines fall between formal, informal, and illegal aspects of their work in the gemstone value chain. Institutional and entrepreneurial literature has opened up a way of problematising traditional approaches to the formalisation of the sector and to considering a hybrid approach as detailed in Figure 10. It has also provided an institutional perspective for the research to better understand the norms around governance and corruption (Ngobo & Fouda, 2012) in conditions of extreme poverty in the failing state of Madagascar. Regulative institutions exist (IISD, 2015) but normative and cultural institutions may differ about what behaviour is acceptable 'to grease the wheels' (Dutta & Sobel, 2016).

Entrepreneurial theory has enabled a reimagining of women's participation in the gemstone value chain as valuable actors in an EE which incorporates transnational partnerships into EEs (Figure 9) in particular in the area of knowledge sharing (for example, Audretsch & Keilbach, 2007; Berge & Pires, 2019; Berner et al., 2012; Gómez et al., 2020; Manning & Vavilov, 2019). In the gemstone value chain in Madagascar, knowledge has been purposely withheld from early actors, especially women, in order for elite players to control and manipulate the market. The role of knowledge in building up regional entrepreneurship is thus a vital part of the EE proposed (Audretsch & Keilbach, 2007).

9.4 Recommendations

I make recommendations under three broad headings: formalisation, creation of partnerships, and knowledge and capacity building (both for women who supply and those who buy African gemstones).

9.4.1 Gender-based Progressive Formalisation

In this research, I have presented a feminist critique of the formalisation of ASM and the GVC (Buss et al., 2019). Going forward it is vital that the process of formalisation empowers rather than disempowers women working in the global gemstone value chain. This will be particularly important when mechanised mining and processing and multinational partners are introduced. Formalisation should be put in place in ways that "correct for, rather than merely observe,

existing exclusions of women from mining activities, policies, trainings, outreach, and design” (Buss et al., 2019, p. 11).

In order to achieve this, I have proposed a model (Figure 10) for the progressive formalisation of women’s work in the gemstone value chain permitting a level of informality and hybridity (Gómez et al., 2020). At each step of the value chain, the model recommends key enablers such as training, including basic literacy and numeracy, and provision of equipment that will help empower women to enter the formal economy when they are ready. For example, phones and cameras will enable women to communicate images of their stones to buyers, bypassing rent-seeking middlemen. This model is designed to grow women’s technical capability within a transnational EE (Gómez et al., 2020; Manning & Vavilov, 2019) and builds in findings from recent research which supports the role of partnerships with intermediaries, donors, and NGOs, creating proto-institutions and enabling market development. In 2019 a woman’s gemstone cooperative ROAM²⁵ was created in Sakaraha based in the lapidary centre. They have the status of an official association in the Malagasy context but need considerable support both from the international gemstone community and Malagasy institutions to move from being a nascent proto – institution to a fully functioning institution.

In Thailand, there is considerable potential to harness current interest in the work of women and improve the conditions of those in cottage industries. The Thai gem industry has been founded on public private partnerships. I suggest that large companies like Pranda work with women’s groups to assure that future industry recognises the role of women and improves the working conditions of poorer women in the informal sector. Across the globe there are international women in mining groups – there is a gap in this area in the Thai industry. Thai women leaders in business and academe need to work with grass roots organisations such as WIEGO to create an association which raises awareness of women’s rights and their needs and champions due diligence in this area. The situation of women cutters and polishers currently working in exploitative informal conditions could be improved by the regulation and formalisation of their work enabling them to obtain workplace benefits. The formalisation process must be inclusive and fair to these women as stipulated by Buss et al. (2019). For example, as machine cutting is introduced into the Thai industry, women cutters need to be

²⁵ The Malagasy meaning of the name ROAM is autonomy and freedom
<https://smi.uq.edu.au/files/52810/Creating-sustainable-future-Madagascar-poorest-05.jpg>

trained to take their place as skilled machinists and factory managers. An association of Thai women in gemstones could work towards this.

9.4.2 Strengthening Partnerships and Building Entrepreneurial Knowledge in an Entrepreneurial Ecosystem

A second recommendation for miners and traders in Madagascar is to strengthen nascent proto-institutions and institutional work that is occurring to empower women. Mentoring and leadership is needed to continue to build collaborative partnerships which are critical in establishing proto-institutions (Lawrence et al., 2002).

These proto-institutions could be the first step in creating institutions that will help women's groups to eventually enter the formal sector. To enable this, there is a strong need to create opportunities for knowledge enrichment and training for women in basic literacy skills, gemstone recognition, value addition, and negotiation strategies and marketing.

Partnerships and work with intermediaries are essential if women are to successfully market their stones beyond the current limited market segmentation. They need to continue to build local partnerships and transnational partners as well as business to business partnerships. These partnerships are key to "redefining market architecture and legitimating new actors" (Mair, Marti, & Ventresca, 2012, p. 843) such as the women in this value chain.

Women in the Malagasy node of the gemstone supply chain need institutional support to overcome resource constraints and institutional voids. This can be mobilised by global local alliances, which build entrepreneurial and technical skills such as those made possible by linkages enabled by transnational EEs (Manning & Vavilov, 2019). In time, spillover effects (Audretsch & Keilbach, 2007) from such partnerships will enable their work to have an intergenerational impact.

The Thai node would also benefit from closer integration into transnational EEs, for example, through social incubators with an emphasis on learning about entrepreneurship (Manning & Vavilov, 2019). The Thai gemstone EE is vibrant and a world leader; however, it is missing innovation and entrepreneurship at the heart of its ecosystem (Spigel & Harrison, 2018). Thailand needs to foster such entrepreneurship and innovation across the industry and in its university programmes.

Audretsch and Keilbach (2007) note that contexts which are rich in knowledge should generate more entrepreneurship and provide more entrepreneurial opportunities. The ultimate aim of this research is to contribute to the creation of contexts which are rich in knowledge about gemstones and their supply chains and which can create further entrepreneurial opportunities

for women and their families. A positive example of such learning across the gemstone value chain involves South-South flows (Horner & Nadvi, 2018), for example, where Thai women gemstone professionals support women working upstream in Africa.

9.4.3 Consumer Education

I don't want to wear someone's misery, I want to wear someone's dignity.

(Orsola de Castro in Archuleta, 2016, p. 158)

Consumer education is an important part of building knowledge in the EE. This can be done by providing information to consumers and retailers about those who have mined the stone, as well as educational material about the age and origin of the stone and its journey from mine to market. It is important to communicate broadly with consumers especially a new generation of consumers who will bring generational change in their approach to ethical practices and clothing and jewellery. Women, as the largest consumers of jewellery, are also potentially a key group to target for communication. Informed consumers such as Ms de Castro can drive change, and through their purchases become institutional entrepreneurs, actors who “[leverage] resources to create new institutions or transform existing ones” (Maguire et al., 2004, in Lawrence & Phillips, 2019, p. 208). Another example is the significant institutional work achieved by women in NGOs like Women's Rights in Mining, who are lobbying for the human rights of women in mineral supply chains who could become excellent advocates on behalf of other women in the industry.

9.4.4 Market Development for Women's Stones

In Madagascar, women miners and traders have been relegated to the task of sorting and selling the very smallest sapphire stones. The potential value of these stones has been overlooked, market research suggests that there is a market for these stones if they are graded, cut and treated, and marketed as responsibly sourced jeweller's melee. This could be enabled by the participation of Thai women cutters and market networks thus creating new South-South connections across the Indian Ocean Rim. They can be distributed using networks such as those of Ms de Castro, or others seeking ethically sourced gemstones mined by women for women.

9.4.5 Malagasy Gemstone Mining and Trading Regulation

In 2020, the Malagasy state is preparing to issue 500 new licences for small-scale miners for the first time since 2009 (Ministry of Mines, personal communication, 11/12/2019). To

improve outcomes for women's empowerment from small-scale mining, many actions are needed from government. The first is to ensure a higher level of transparency around the issuing of mining licences and to make provision to enable women to obtain some of these licences, for example, through a hybrid system of formalisation such as the one proposed in this research. The government office for mines should be opened in the mining town and a central buying centre for the stones is needed along with professional development extension services that could improve transparency of sales and knowledge of the value of the stones' efficiency and the health and safety of women's mining activity.

In Madagascar, where global indicators of women's vulnerability (SIGI, 2019) show an increase in the difficulties faced by women and girls, such institutional work is urgent. Leadership within the government is needed to enforce existing regulation and progress new legislation to improve the sustainability of the gemstone industry and the opportunities for empowerment of women working in it.

To date there has been no large scale mining in Madagascar but large scale miner, Gemfields holds exploration licenses and there are signs they wish to move to operationalise their investment. This needs to be monitored closely to ensure that women do not miss out on employment and professional development opportunities.

Final Thoughts

Through listening to narratives of harshness and hope from women working as miners, to traders' stories of survival and growth entrepreneurship, and to the accounts of skilled craftswomen and academics, I have uncovered some of the multi-faceted ways in which change can occur for the better in the lives of women across the gemstone value chain (Cornwall & Edwards, 2014). Many challenges remain particularly in overcoming institutional and cultural barriers for all women but particularly those at the early stages of the value chain. But hope comes from women's own voices and their eagerness to share their experience.

A striking feature and surprising part of this research was the readiness of participants to talk about the role women played in the gem and jewellery value chain. In countries where there is evidence of considerable gender inequality, there was a consensus-challenging openness to talking about women in the industry and a genuine interest in the findings of this research. This eagerness to talk was the same across the value chain. In Madagascar, women sitting by the streams quickly gathered to tell me their stories. In Thailand, the deputy director of the largest

and most successful gem and jewellery firm told me her experiences and then picked up her phone to call every workshop manager for information about women. It is hoped that the communication of these findings and further research will honour this interest and trust.

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Appendix 1: Project Information in English, Thai and French



PATHWAYS, OPPORTUNITIES AND CHALLENGES FOR WOMEN WORKING ACROSS THE SAPPHIRE VALUE CHAIN

The market for coloured gemstones is growing across the world. Artisanal miners using hand tools mine most coloured gemstones, the number of these artisanal miners is increasing and many of them are women. We do not know much about how they become miners, traders and cutters and how this activity affects the lives of these women. For example: Does the money they earn make a big difference to their lives and help them find a way out of poverty? Has their work had any impacts on their health and their family life? This study hopes to answer these questions.

This research is interested in finding out how more value can be added to the stones for example through training and sharing of knowledge in grading, cutting and setting the stones. This research is interested to find out more about how women working in cutting and jewellery businesses can be successful.

The project forms part of the doctoral research of Lynda Lawson at the Sustainable Minerals Institute at the University of Queensland.

It is also part of ongoing work for the Tiffany and Co Foundation work on women in the coloured gemstone industry based in the GEMHUB <https://www.sustainablegemstones.org/>

Most of her work has been done with women miners and traders in Madagascar ; she wishes to learn more about the final destination of the Madagascar sapphires and how women can .

Also she wishes to learn lessons from Thailand's very significant achievement in the gemstone and jewellery industry.

The research team

- Researcher : Lynda Lawson, Manager (Training and Knowledge Transfer), Telephone: +617 3346 3407, Email: l.lawson1@uq.edu.au
- Principal Advisor : Professor Saleem Ali , Director Centre for Social Responsibility, Telephone: +61 7 3346 4043 Email : s.ali@uq.edu.au
- Associate Advisor Dr Kathryn Sturman, Senior Research Fellow, Telephone: +61 7 3346 4006, Email: k.sturman@uq.edu.au
- Associate Advisor: Professor Peter W. Liesch, Professor of International Business UQ Business School Telephone: +61 7 3346 8174 Email: p.liesch@uq.edu.au

Participation

We are hoping to interview (by telephone, Skype, or face-to-face) or gain email responses from a range of people involved in the mining of coloured gemstones and their production: women miners or traders, mining associations, gem cutters and jewellers. All information you provide would remain completely confidential.

Your name will not be mentioned in any publications arising from the project, and the information you provide will be securely stored in a locked filing cabinet or in password-protected computer files. Please be assured that your participation in this project is entirely voluntary, and you retain the right to withdraw from the study at any time, without penalty.

Should you choose to withdraw from the project any information already provided by you will not be used in the study.

We will not reveal your name or the name of your organisation in any reports or publications resulting from this research without your permission, however we request your consent to describe the nature of your organisational or sectoral affiliation (for example, mining ministry employee/NGO employee/member of ASM association/academic). While we will not reveal identifying information about you or your organisation, knowledge of your role and the project you have developed and the nature of the research may mean that people draw conclusions about the findings.

Outcomes

The findings will be incorporated into three publications, a final report, training materials and recommendations for the coloured gemstone industry.

Feedback to participants

Publications, project outcomes, recommendations, and reports will appear progressively be available from 2018. However an overview of findings can be provided to interested participants on request at any stage by contacting Lynda Lawson (l.lawson1@uq.edu.au).

Further Information:

This study adheres to the Guidelines of the ethical review process of The University of Queensland and the National Statement on Ethical Conduct in Human Research (approval #). Whilst you are free to discuss your participation in this study with project staff (contactable on the numbers provided above) if you would like to speak to an officer of the University not involved in the study, you may contact the Ethics Coordinator on +617 3346 3955. For general information, or to discuss the progress of the research or to withdraw your involvement, please contact:

Lynda Lawson

Training and Knowledge Transfer Manager

Senior researcher Gem Hub <https://www.sustainablegemstones.org/>

Centre for Social Responsibility in Mining, SMI

The University Of Queensland, Brisbane, QLD 4072

Ph: +617 3346 3407 Email: l.lawson1@uq.edu.au

www.csr.m.uq.edu.au

PATHWAYS, OPPORTUNITIES AND CHALLENGES FOR WOMEN WORKING
ACROSS THE SAPPHIRE VALUE CHAIN

PROJECT INFORMATION SHEET

ตลาดอัญมณีสีมีการเติบโตทั่วโลก คนงานเหมืองแร่ Artisanal ใช้เครื่องมือแบบดั้งเดิมที่ต้องใช้มือหาอัญมณีสีเป็นส่วนมาก จำนวนคนงานเหล่านี้กำลังเพิ่มมากขึ้นและหลายคนก็เป็นสตรี เราไม่มีความรู้มากนักว่าพวกเขากลายเป็นคนทำเหมืองหรือผู้ค้าได้อย่างไรหรือว่าการทำเหมืองแร่ไม่มีผลอย่างไรต่อชีวิตของผู้หญิงเหล่านี้ ตัวอย่างเช่นรายได้จากการทำงานนี้สร้างความแตกต่างให้กับชีวิตของพวกเขาหรือไม่และช่วยให้พวกเขาพ้นจากความยากจนได้หรือไม่? การทำงานมีผลกระทบต่อสุขภาพของเขาและครอบครัวของพวกเขาหรือไม่? การศึกษาในวัยที่จะตอบคำถามเหล่านี้

งานวิจัยชิ้นนี้มีความสนใจว่าจะสามารถเพิ่มมูลค่าให้กับอัญมณีสีได้อย่างไรเช่นโดยผ่านการฝึกอบรมและแบ่งปันความรู้ในการคัด การเจียรไนและการขึ้นตัวเรือนเครื่องประดับ นอกจากนี้งานวิจัยนี้มีความสนใจที่จะหาข้อมูลเพิ่มเติมเกี่ยวกับวิธีที่ผู้หญิงทำหน้าที่เจียรไนและประกอบธุรกิจอัญมณีสีสามารถประสบความสำเร็จได้อย่างไร

โครงการนี้เป็นส่วนหนึ่งของงานวิจัยระดับดุษฎีบัณฑิตของ ลินดา ลอว์สัน (Lynda Lawson) จากสถาบัน the Sustainable Minerals Institute แห่งมหาวิทยาลัย the University of Queensland งานวิจัยชิ้นนี้ไม่ได้รับเงินสนับสนุนจากแหล่งเฉพาะเจาะจงแต่อย่างใด

โดยเธอ(ลินดา ลอว์สัน)มีความปรารถนาเป็นอย่างยิ่งที่จะได้เรียนรู้จากความสำเร็จอย่างยั่งยืนยาวของประเทศไทยในการทำอุตสาหกรรมอัญมณีและเครื่องประดับ

The research team

- Researcher : Lynda Lawson, Manager (Training and Knowledge Transfer), Telephone: +617 3346 3407, Email: l.lawson1@uq.edu.au
- Principal Advisor : Professor Saleem Ali , Director Centre for Social Responsibility, Telephone: +61 7 3346 4043 Email : s.ali3@uq.edu.au
- Associate Advisor Dr Kathryn Sturman, Senior Research Fellow, Telephone: +61 7 3346 4006, Email: k.sturman@uq.edu.au

- Associate Advisor: Professor Peter W. Liesch, Professor of International Business UQ Business School
Telephone: +61 7 3346 8174 Email: p.liesch@uq.edu.au

การมีส่วนร่วม

เราหวังว่าจะได้สัมภาษณ์ (ทางโทรศัพท์, ผ่านโปรแกรม Skype, หรือตัวต่อตัว) หรือได้รับการตอบรับทางอีเมลจากผู้ที่มีส่วนเกี่ยวข้องกับการทำเหมืองพลอยสีซึ่งรวมถึงในขั้นตอนการผลิตอันประกอบด้วย คนงานเหมืองหรือผู้ค้าที่เป็นสตรี, สหพันธ์ผู้ทำเหมือง, ช่างเจียรไนและช่างทำอัญมณี ข้อมูลทั้งหมดที่ท่านได้ให้กับเราจะถูกเก็บเป็นความลับ

ชื่อของท่านจะไม่ถูกกล่าวถึงในสิ่งตีพิมพ์ใดๆ
ข้อมูลที่ท่านได้ให้จะถูกเก็บรักษาไว้ในตู้ที่มีการปิดล็อกแน่นหนาหรือเก็บในแฟ้มข้อมูลที่ต่อ
งใช้รหัสผ่านในการเปิดสำหรับเครื่องคอมพิวเตอร์
กรุณาทำความเข้าใจว่าการมีส่วนร่วมในโครงการนี้เป็นไปโดยความสมัครใจเท่านั้นและท่าน
ามีสิทธิถอนตัวได้ทุกเมื่อโดยไม่มีความผิด

หากท่านเลือกที่จะถอนตัวจากโครงการนี้ข้อมูลใดๆ
ของท่านจะไม่ถูกนำมาใช้ในการศึกษา

จะไม่มีเปิดเผยชื่อของท่านหรือชื่อของหน่วยงานของท่านในรายงานหรือสิ่งตีพิมพ์ใดๆ
หากไม่ได้รับอนุญาตจากท่าน อย่างไรก็ตาม
ทางเราร้องขอความยินยอมให้ท่านอธิบายโครงสร้างขององค์กรของท่านหรือตำแหน่งงาน
ของท่านเช่น(ข้าราชการในหน่วยงานที่เกี่ยวข้องกับอุตสาหกรรมเหมืองแร่/ ลูกจ้างของ
NGO/สมาชิกของกลุ่ม ASM/ศาสตราจารย์)
ถึงแม้ว่าตัวตนและองค์กรของท่านจะไม่ถูกเปิดเผยแต่ข้อมูลเกี่ยวกับหน้าที่และความรับผิดชอบ
ตามรายงานอาจจะถูกนำมาใช้ในการสรุปผลลัพธ์ของงานวิจัย

ผลลัพธ์

สิ่งที่ค้นพบจะถูกรวบรวมเป็นวารสาร 3ฉบับ, รายงานจบการศึกษา,
เอกสารสำหรับการฝึกอบรม และ คำแนะนำสำหรับอุตสาหกรรมพลอย

การตอบกลับผู้เข้าร่วมโครงการ

วารสาร, ผลลัพธ์ของโครงการ, คำแนะนำ และรายงานจะพร้อมเผยแพร่ในปี 2018
อย่างไรก็ตามผลการวิจัยแบบคร่าวๆสามารถถูกจัดเตรียมให้แก่ผู้มีส่วนร่วมในโครง
การที่สนใจได้ในทุกระยะโดย ติดต่อ [Lynda Lawson \(l.lawson1@uq.edu.au\)](mailto:Lynda.Lawson1@uq.edu.au)

EXPLOITATION ARTISANALE DE PIERRES PRÉCIEUSES ET RÉDUCTION DE LA PAUVRETÉ : LES FEMMES ET LA VALEUR AJOUTÉE DANS LE PAYS D'ORIGINE

FICHE DE PROJET

Le marché des pierres précieuses grandit de plus en plus à travers le monde. A Madagascar, la plupart des pierres précieuses sont exploitées par les mineurs artisanaux à l'aide d'outils manuels. Le nombre de ces mineurs artisanaux est en augmentation et beaucoup d'entre eux sont des femmes. L'état des connaissances sur les mineurs artisanaux, notamment les femmes, reste pourtant limité. A l'heure actuelle, nous ne savons pas vraiment comment elles deviennent mineures ou commerçantes. Les impacts de l'exploitation minière sur la vie de ces femmes sont aussi largement inconnus. Est-ce que l'argent qu'elles tirent de cette exploitation améliore leur niveau de vie et les aide à sortir de la pauvreté ? Leur travail a-t-il des répercussions sur leur santé et leur vie de famille ? Cette étude tente de répondre à ces questions.

On estime que les mineurs de pierres précieuses de couleur reçoivent généralement une très faible partie du prix de vente final. Cette recherche vise à déterminer comment améliorer la valeur ajoutée des pierres dans leur pays d'origine, par exemple par la formation et le partage des connaissances (par exemple en matière de classement, de coupe et de fixation des pierres).

Nous sommes intéressés de mieux comprendre le processus de lapiderie et la formation des tailleurs de pierres en Afrique.

Notre étude s'intéresse à la manière dont les entreprises de bijoux qui opèrent dans les pays d'extraction peuvent mieux réussir en commercialisant des pierres locales.

Le projet s'inscrit dans le cadre de la thèse de doctorat de Lynda Lawson à l'Institut des Minéraux Durables à l'Université de Queensland. Aucun financement spécifique n'a été alloué à cette recherche.

L'équipe de recherche

Chercheur : Lynda Lawson, Directrice des formations et transferts de connaissances
Téléphone: +61 7 3346 3407

Email : l.lawson1 @ uq.edu.au

Conseiller Principal : Professeur Salim Ali, Directeur du Centre pour la Responsabilité Sociale dans le Secteur Minier

Téléphone: +61 7 3346 4043

Email : s.ali3 @ uq.edu.au

Conseillère Adjointe : Dr Kathryn Sturman, Senior Research Fellow

Téléphone : +61 7 3346 4006

Email : k.sturman @ uq.edu.au

Participation

Nous espérons interviewer (en face à face, par téléphone, Skype ou courriel) un certain nombre de personnes impliquées dans l'extraction des pierres précieuses et de leur production : des femmes mineurs ou commerçantes, des associations minières, lapidaires et bijoutiers.

Toutes les informations fournies demeureront strictement confidentielles

Votre nom ne sera pas mentionné dans les publications découlant du projet et les informations que vous fournissez seront stockées en toute sécurité dans un classeur verrouillé ou dans des fichiers informatiques protégés par mots de passe. Soyez assurés que votre participation dans ce projet est entièrement volontaire. Vous conservez le droit de vous retirer de l'étude à tout moment, sans pénalité. Si vous choisissez de vous retirer du projet toutes les informations que vous auriez déjà fournies ne seraient pas utilisées dans l'étude.

Nous ne révélerons ni votre nom, ni le nom de votre organisation dans les rapports ou publications résultant de cette recherche sans votre permission. Cependant nous vous demandons l'autorisation de décrire la nature de votre organisation et de votre secteur (par exemple, le ministère de l'exploitation minière, employé salarié / ONG / membre de l'association ASM / académique). Bien que nous ne révélerons pas d'informations sur votre identité ou celle de votre organisation, les informations sur votre rôle et le projet que vous avez développé, ainsi que la nature de la recherche peuvent indirectement conduire certaines personnes à attirer des conclusions sur les résultats de l'étude.

Résultats

Les résultats seront intégrés dans trois publications, un rapport final, du matériel de formation et des conseils pour l'industrie de la pierre précieuse.

Suivi et feedback aux participants

Les publications, les résultats du projet, les recommandations et rapports seront progressivement disponibles à partir de 2015.

Cependant un aperçu des résultats peut être fourni aux participants intéressés sur demande à tout moment en contactant Lynda Lawson : l.lawson1 @ uq.edu.au

Informations complémentaires

Cette étude est conforme aux lignes directrices du processus d'examen éthique de l'Université du Queensland et à la Déclaration nationale sur l'éthique dans la recherche humaine. Vous êtes libre de discuter de votre participation à cette étude avec le personnel du projet (voir contacts ci-dessus).

Si vous souhaitez parler à un agent de l'université ne participant pas à l'étude, vous pouvez contacter le coordinateur éthique au +61 7 3365 3924.

Pour obtenir des informations générales ou discuter des progrès de la recherche ou retirer votre participation de l'étude, merci de contacter :

Lynda Lawson
Centre pour la responsabilité sociale dans le secteur minier, SMI
Université de Queensland, Brisbane, Queensland 4072
Tél : +617 3346 3407 Email : l.lawson1 @ uq.edu.au
www.csr.uq.edu.au

Appendix 2 Ethical Clearance and Amendments

Lynda Lawson

From: Deanna Kemp
Sent: Friday, 8 April 2016 2:13 PM
To: Lynda Lawson
Cc: Saleem Ali; SMI Student Research Ethics Committee
Subject: RE: reference number for ethical clearance

Dear Lynda,

Thank you for resubmitting your ethics forms. Based on a rapid due diligence process that has included: (i) correspondence with the Chair of the Student Research Ethics Committee at the time of your submission, and (ii) correspondence with another member of the Committee at that time and (iii) a review of your documentation, I can provide retrospective approval of your ethics application.

Please note that your Ethical Clearance Number is 14.001.

Good luck with your research and stay safe.

Kind regards,
Deanna

From: Lynda Lawson
Sent: Friday, 8 April 2016 1:28 PM
To: Deanna Kemp
Cc: Saleem Ali
Subject: FW: reference number for ethical clearance

Dear Deanna , please find attached the final version of my ethics document.
Thank you for your help and best wishes Lynda

(resubmitted as original committee records were lost)



THE UNIVERSITY OF QUEENSLAND
Sub-Committee Human Research Ethics Approval

Project Title: Pathways, Opportunities and Challenges for Women Working Across the Sapphire Value Chain – 28/11/2019 AMENDMENT

Chief Investigator: Ms Lynda Lawson

Supervisors: Dr Kathryn Stuman, Professor Saleem Ali

Co-Investigator(s): Mrs Marcena Hunter

School(s): Sustainable Minerals Institute, The University of Queensland

Approval Number: 2017001790

Granting Agency/Degree: None

Duration: 31 May 2020

Comments/Conditions:

Amendment 28/11/2019:

- Add Investigator : Marcena Hunter
- Extend project duration to 31 May 2020
- Interview African traders dealing in gemstones in Bangkok and Chanthaburi
- Questions will be more focussed on researching the fairness of the supply chain
- Lawson New topics and questions Nov 2019
- LawsonAmendment December r2018FLOWKS
- Marcena Hunter CV July 2019
- New project information and consent forms FLOWS

Note: If this approval is for amendments to an already approved protocol for which a UQ Clinical Trials Protection/Insurance Form was originally submitted, then the researchers must directly notify the UQ Insurance Office of any changes to that Form and Participant Information Sheets & Consent Forms as a result of the amendments, before action.

Name of responsible Sub-Committee:

University of Queensland Engineering, Architecture and Information Technology, Low & Negligible Risk Ethics Sub-Committee

This project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research* and complies with the regulations governing experimentation on humans.

Name of Ethics Sub-Committee representative:

Professor Deanna Kemp

Chairperson

University of Queensland Engineering, Architecture and Information Technology, Low & Negligible Risk Ethics Sub-Committee

Signature

Date

06/12/2019

Approval of amendments