



Artisanal and Small-Scale Gold Mining in East Cameroon: Policy and Livelihood Implications

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requirements for the degree of Doctor of
Philosophy**

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Declaration of Original Authorship

I, **BAKIA Mbianyor** hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the works of others, this is always clearly stated.

Signed : _____

Date : _____

ABSTRACT

Over the past few decades, artisanal and small-scale mining (ASM) has grown at an exponential rate across sub-Saharan Africa where the activity involves an eclectic mix of people. Despite the conventional image of this being a marginal, subsistence-oriented and poverty driven activity, there is growing recent evidence that it is one of the region's most important rural non-farm activities. However, ASM has received little coverage in development literature; has failed to garner support from governments, donor and aid agencies; and has been excluded from most of the region's development agenda. These have been blamed on insufficient baseline census information on the subject and policy dialogues that are not in tune with the realities on the ground.

My research helps to bridge this gap by focusing on the East Region, the location of a burgeoning ASM sector in Cameroon, capturing a level of detail not yet undertaken. To achieve this, a mixture of qualitative and quantitative analyses was undertaken: interviews with 26 key stakeholders; 389 miners, focus group discussions and participant observation. This research provides a comprehensive understanding of the dynamics of ASM sector of the East Region of Cameroon.

The findings from this research reveal that ASM is the most important livelihood in the area. The activity is highly informal as a result of lack of policy and regulatory capacity in the sector. Due to the absence of large-scale mine production and ubiquitous land availability, operatives mine directly from primary deposits. Extraction rates are high, with miners earning up to US\$ 40 per day. Household income shows low levels of inequality with Gini coefficients of less than 0.4. The high incomes from ASM stimulates downstream activities and enhances local economies in a manner atypical in other rural parts of Cameroon. Despite ethnic heterogeneity in Cameroon, ASM populations are homogenous, and access to land for the activity is governed by politics, ethnicity and social identity.

A few number of ASM operatives diversify their income sources by engaging in other livelihoods due to age and family responsibility. Whilst the study does not reveal any

evidence of 're-agrarianization', it has shown a recognisable level of interconnectedness between ASM and smallholder farming. Despite such strategy, the miners are deemed to be vulnerable and less adaptable to impending LSM boom and possible change in the miners' lifestyles. The study concludes with a call for parallel studies to be carried out in other mineral rich parts of the country, and for ASM to be mainstreamed in Cameroon's poverty reduction strategy.

AUTHORS'S PUBLICATIONS AND SEMINAR PRESENTATIONS

Over the past three years (October 2010–March 2014) aspects of this research have been disseminated through a variety of media, including presentations at national and international conferences, peer reviewed journal publications and conference proceedings.

These research outputs and knowledge sharing with the wider academic and research community are detailed below. The list does not include formal and informal presentations made at a number of stakeholder meetings in Cameroon (e.g. regulators, ministerial authorities and the artisanal mining communities) during the fieldwork.

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DEDICATION

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LIST OF ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AI	Amnesty International
ANOVA	Analysis of Variance
ANU	Australian National University
AOE	African Economic Outlook
ASM	Artisanal and Small-Scale Mining
Au	Gold
CAC	Additional Council Tax
CAPAM	Support and Promotion Framework of Mining Activities Organisation
CASM	Communities and Small-scale Mining
CFA	Communauté Financière Africaine
CFC	Common Fund for Commodities
CIA	Central Intelligence Agency
CIFOR	Centre for International Forestry Research
CIIEID	Canadian International Institute for Extractive Industries and Development
CPDM	Cameroon Peoples' Democratic Movement
DFD	Diamonds for Development
DfID	Department for International Development
DoF	Department of Forestry
DRC	Democratic Republic of Congo
ERC	Economic Recovery Programme
FDI	Foreign Direct Investment
FEICOM	Special Council Support Fund for Mutual Assistance
GDP	Gross Domestic Product
GNP	Gross National Product
GoC	Government of Cameroon
ICLS	International Conference of Labour Statisticians
IDS	Institute for Development Studies
ILO	International Labour Office
IMF	International Monetary Fund
IPEC	International Programme on the Elimination of Child Labour
ITDG	Intermediate Technology Development Group
LA21	Local Agenda 21
LSM	Large-Scale Mining
MINATD	Ministry of Territorial Administration and Decentralisation
MMDS	Mining, Minerals and Sustainable Development
MoFAH	Ministry of Fisheries and Animal Husbandry
NEO	National Election Office
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
PwC	PricewaterhouseCoopers
SAP	Structural Adjustment Programme
SPSS	Statistical Packages for Social Sciences
UN	United Nations

UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNIDO	United Nations Industrial Development Organisation
US	United States
USA	United States of America
USAID	United States Agency for International Development
USD	United States Dollar
WB	World Bank
WCED	World Conference on Environment and Development
WHO	World Health Organisation
WMMF	World Mines Ministries Forum
WWF	World wildlife Fund for Nature

1 Chapter One - Contextualising artisanal and small-scale mining

1.1 Introduction: the importance of artisanal and small-scale

Artisanal and small-scale Mining (ASM) occurs in approximately 80 countries worldwide. There are approximately 100 million artisanal miners globally. Artisanal and small-scale production supply accounts for 80% of global sapphire, 20% of gold mining and up to 20% of diamond mining (World Bank, 2013). It is widespread in developing countries in Africa, Asia, Oceania, and Central and South America. Though the informal nature and on the whole un-mechanized operation generally results in low productivity, the sector represents an important livelihood and income source for the poverty-affected local population. It ensures the existence of millions of families in rural areas of developing countries. About 100 million people – workers and their families - depend on artisanal mining compared to only about 7 million people worldwide in industrial mining (World Bank, 2013).

Despite the undoubted significance of this industrial sector that these findings imply, development agencies, donors organisations, governments, large-scale mining companies (LSM) and national and international Non-Governmental Organisations (NGOs) have not accorded the sector the level of attention commensurate with its contribution to local economic growth. Until recently, these organisations have focused too much on the negative impacts of ASM rather than addressing its structural challenges to improve opportunities for the millions of people and poor communities that it supports.

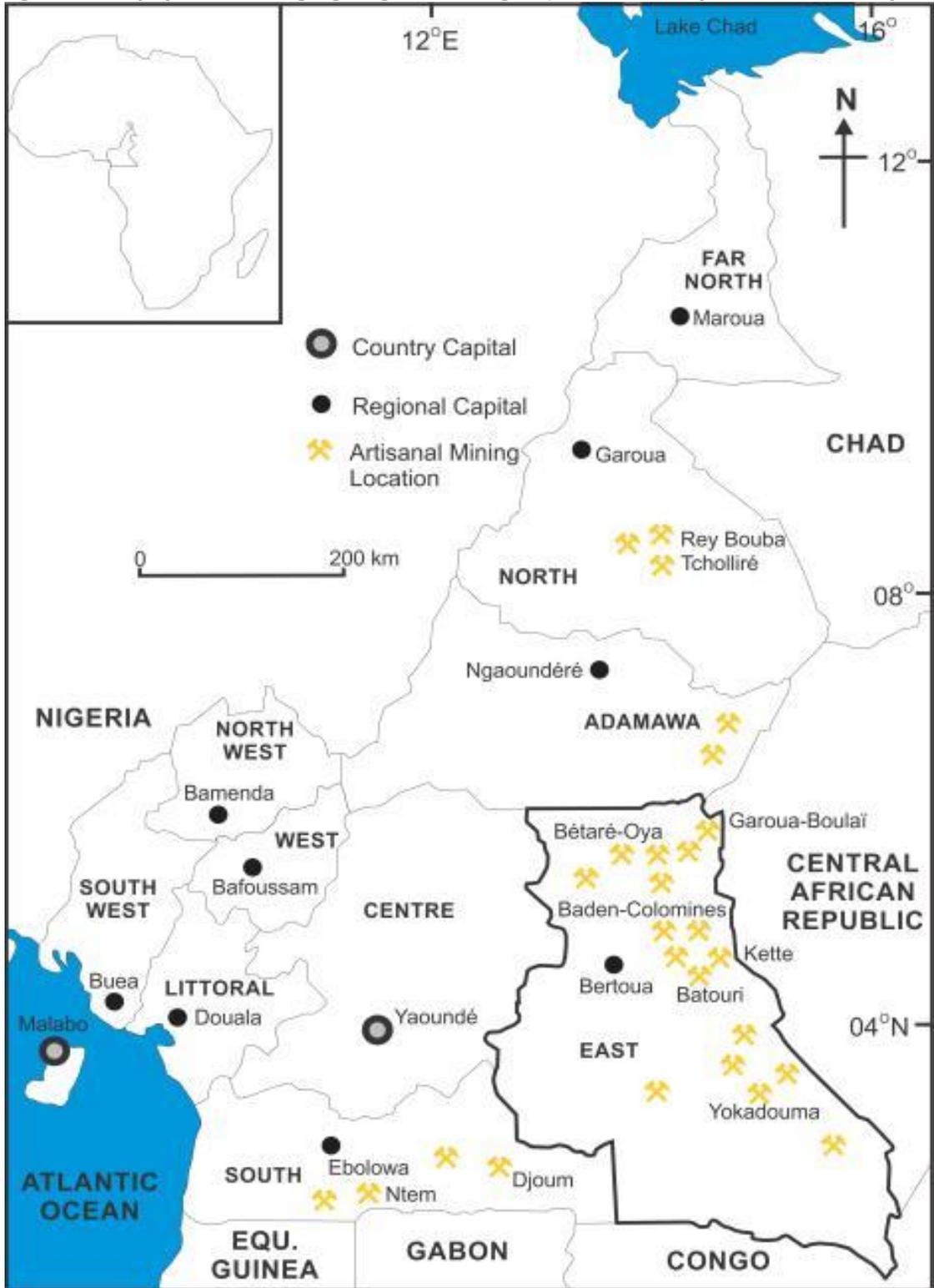
It has recently been argued that there is only limited coverage of ASM in development and livelihood diversification literature in sub-Saharan Africa, and that ASM has not been fully embraced in the resource policies of governments in the sub-continent (Hilson and Garforth, 2013). This weakness is symptomatic of a policy discourse of ASM that is not in tune with the complex realities on the ground in many parts of sub-Saharan Africa (Hilson and McQuilken, 2014). It has been reported that the orientation of international

policy towards development and poverty alleviation prioritises agriculture in general, and smallholder farming in particular, and that despite the rhetoric, ASM has continued to be an afterthought in the mind-set of international donor and aid agencies (Hilson and McQuilken, 2014). Furthermore, resources policies of most sub-Saharan African countries have been geared towards maximising taxation revenues from LSM operations and ignoring the importance of simultaneously supporting a viable ASM sector. These policies have instead focused on disseminating a negative image about ASM (associating it with wars, crime, child labour, prostitution, mercury pollution and HIV/AIDS), thereby making it difficult to argue a case for greater inclusion of ASM in African development policies and programmes (Hilson and McQuilken, 2014).

The failure of ASM to garner support from governments, donor and aid agencies (in terms of formalisation, support and legitimisation) is thought to be fuelling illegal operations in many stretches across sub-Saharan Africa. The very slow pace of global intervention and support schemes from organisations such as the World Bank, the United Nations, the United States Agency for International Development (USAID) and the United Kingdom Department for International Development (DfID) are not only failing to facilitate improvements in the sector but exacerbating them (Hilson and McQuilken, 2014; Hilson and Potter, 2003; Hilson, 2007). Even the recent emergence of the African Development Bank as a development player in the continent has done little towards the much needed change in policy orientation. In its 10 year strategy (2013 – 2022), the Pan-African bank has set out five development priorities namely: infrastructure development; regional economic integration; private sector development; governance and accountability; and skills and technology. This strategy fails to take into account the role of one of the continent's most important non-farm sector which provided millions of jobs to rural populations – ASM. Hilson (2009) argues that poor understanding of the structural challenges of the sector, specifically the dynamics within target populations, has precipitated the failure of ASM support schemes, and that strengthened policy for assistance in ASM communities should be based on more precise primary data regarding the number of people operating, as well as their origins and ethnic backgrounds, ages and educational levels (Hilson, 2009).

My project addresses precisely this critical research gap, with a primary focus on ASM gold mining in East Cameroon (shown in Figure 1.1), which is currently under-researched. This sector in East Cameroon is emerging in significance, and at a time when LSM operations are yet to make the transition from exploration to production. As LSM operations are expected to transform the political economy of this region, and indeed Cameroon, this research could not come at a better time for ASM communities and researchers alike. It is hoped that my thesis will raise the profile of ASM in the country and inform policy and support for the sector through the provision of precise data on the sector, the complex workings of the ASM sector and its distinct economic, social and technical features.

Figure 1.1: Map of Cameroon highlighting the East Region (Inset, location of Cameroon within Africa)



1.2 Research problem

In the past few decades, the natural resource policies of most sub-Saharan African countries have been skewed towards tax revenues accruing to LSM, and ignoring the

importance of simultaneously supporting a viable ASM sector. This has been influenced by the blueprint set by the World Bank (e.g. *Booming Enclaves: A Strategy for African Mining, 1992*) which calls for reforms to treat LSM and ASM equally without the recognition that they are two different sectors of industry. The aftermath of this blueprint was that the majority of mining laws were drawn up having in mind the significance of LSM operations and at the same time discouraging the formalisation of ASM.

Despite its growing economic importance, ASM still occupies a peripheral position on the economic development agenda of many countries in sub-Saharan Africa (Hilson and McQuilken, 2014). The failure by the Global Support Facility to implement industry-specific policies and regulations, implement mechanisation of equipment and launch alternative livelihood programmes for diversifying local economies (Hilson, 2007) and the unbearable impacts of Structural Adjustment Policies (Hilson and Garforth, 2013) has led to calls within the research community for artisanal miners to be at the centre of development efforts in this region. Most of the policies and support schemes for ASM have proved unpopular with target groups and reflects how little in the organisations championing such changes are with the mind-sets and ambitions of ASM populations (Hilson and Banchirigah, 2009).

According to Hilson (2009), this knowledge gap can only be filled if careful analysis of the situation on the ground is undertaken in order to gain a better understanding of the organisational structures in place, the types of people engaged in activities, and the needs of operators – a gap which my research seeks to address with respect to East Cameroon.

1.2.1 Research scope

ASM is a very broad activity that is defined differently by academics, policy think tanks and international governmental organizations. In this research, I focus on gold extraction and processing which is considered to be the largest arm of ASM. Hilson (2009) posits that failure to take into account the dynamics of ASM communities almost

always leads to the implementation of inappropriate legislation and industry support schemes. To provide a better understanding of the nature and extent of ASM as a livelihood in East Cameroon and to examine the manner in which the country's resource policy bears on the sector, my research sets out to understand three key research themes: (1) the main aspects of ASM operation in East Cameroon; (2) how natural resources are governed in Cameroon; and (3) if ASM could be a catalyst for sustainable rural livelihood in the country. These themes are detailed in Section 1.2.3, and justified in Chapters Five, Six Seven and Eight. The study covers twenty four communities in six areas in East Cameroon.

1.2.2 Aims of research

Despite attempts to regulate and formalise ASM in the last four decades, the sector has received very little coverage in the development literature in sub-Saharan Africa (Hilson and McQuilken, 2014). The emerging impression of ASM being a largely disorganised sector reflects a policy discourse that is not in tune with the realities on the ground. For ASM to be embraced in policy and poverty eradication strategies of countries in this sub-region, its structural challenges need to be studied and understood before the implementation of support schemes for the sector. Against this background, my research aims to broaden understanding of the ASM sector in Cameroon by providing an in-depth analysis of activities. To this end, it illuminates some parallels and contrasts with ASM in other sub-Saharan African countries, and generates data that could inform policy and intervention in the sector.

1.2.3 Research questions

The focus of this research is to illuminate the main features of ASM as a livelihood to thousands of people in East Cameroon and the wider policy implications thereof. In order to deliver the stated aim in Section 1.2.2, the main research questions that this thesis seeks to address are:

- (1) What are the main aspects of ASM operation in the region? Chapters Five and Six will seek to address this question, focusing on the forms of ASM operations

in the region and how operatives are organised; the number of ASM workers, their motivations, demographic, social and cultural backgrounds are explored, as are the miners productivity, value chain and potential conflict with LSM.

- (2) How are resources governed in the East Region? This question will be addressed in Chapter Six. In attempting to answer this question, access to, and control over land for ASM will be delved into. Additionally, the role of social identity in defining people's ability to engage in ASM will be explored.
- (3) Does ASM act as a catalyst for sustainable rural livelihoods in the region? This question will be addressed in Chapters Seven and Eight. It will explore incomes of the miners and how their earnings are expended. Other aspects such as the livelihood potential of the region, the institutional and organisational settings and their influence on ASM as a livelihood as well as the policy implications will be addressed in these chapters.

1.3 Conceptual framework

Following on from the research questions stated above, I developed a conceptual framework for this research in Chapter Two, drawing on the theoretical fields of ASM, land rights, informal economies and sustainable livelihoods. I explore the interconnectedness of these fields, identifying gaps that my research seeks to address. The framework also forms the theoretical underpinning for analysing and presenting my empirical research outcome in Chapters Five, Six and Seven, illuminating the need for location specific and detailed ASM studies that would generate baseline information and inform ASM policies and support schemes in sub-Saharan Africa.

1.4 Introducing key concepts

Exploring the concepts of resource politics, development and poverty is important because they are frequently referred to in the thesis and underlie the central approach of my research. I therefore provide an introduction to these concepts and the contexts within which they are used in this thesis.

1.4.1 Resource geopolitics

The so-called scramble for ownership and control over such resources in the global South by different stakeholders has implications for policy, governance and development. Political rivalry, conflicts, insurgency, and in some cases wars over subterranean resources are now commonplace in mineral-rich societies (Le Billon, 2005). These struggles have stimulated debates in the areas of resource availability, political control and conflicts. The world's diminishing resources, including fossil fuels and minerals, have led many nations to compete for advantage. 'Resource wars' are now being fought both at national and international levels and today the competition is entering a new phase. The term 'resource wars' is most commonly understood as conflicts over the 'pursuit or possession of critical materials' (Klare, 2001). Although the term has been widely used in reference to water, petroleum and other resources such as diamonds, timber, and coltan, it has also been contested as a framing device.

There are political dynamics involved in the scramble for resources because resources are tied to particular geographic scales and spaces, and there are social practices involved in resource exploitation, circulation, transformation and consumption. Resource wars engage with the potential interplay of resource related social processes, including identity formation and territorialities at various scales (Dunn, 2001; Pearce, 2005). The struggle for the control of resources is re-aligning political power balances throughout the world. Nations need increasing amounts of minerals and materials to generate economic growth, but the cost of supplying new and increasing amounts of minerals and mineral resources has become challenging. In some instances, securing access to these resources require military expenditures as well.

Strategic thinking about resources during the Cold War focused on the vulnerability arising from resource supply dependence and the potential for international conflicts resulting from competition over access to key resources (Westing, 1988). Emphasis was placed on concepts of 'resource security' through strategic reserves and alliances with producing countries, and a military 'balance of power' between the USA and the Soviet Union. The decolonisation process, 1956 Suez crisis, 1973 Arab oil embargo and the 1979

Iranian revolution also contributed to an increase in focus of Western strategic concerns on domestic and regional political stability and alliances (Russett, 1981). Since then, security of 'resource supply' continues to inform governmental and corporate decisions in the management of several minerals, including oil, gas and rare earth minerals (Anderson and Anderson, 1998).

While the USA, China and the OECD have identified key minerals upon which their military and economic interests lie, mineral producing countries, especially in sub-Saharan Africa, continue to depend on the supply of these minerals, often without beneficiation for poverty alleviation and other millennium development goals. Natural resources wealth was initially viewed as a blessing for developing countries. However since the 1980s, the tone in the debates have changed and has been dominated by debates over the 'resource curse', in an attempt to explain two decades of poor economic performance in mineral rich countries (Auty, 1993; Auty, 2001; Sachs and Warner, 1995). Advocates have expressed concerns about the adverse effects of mineral dependence on growth and equity (Auty, 1993; Ross, 2008; Sachs and Warner, 1995). Stiglitz (2007) went as far as to suggest that if institutional conditions are not right, then minerals should be left in the ground. Yet the World Bank and other international financial institutions such the IMF have continued to encourage countries to commit to extractive industry growth as a development strategy (Campbell, 2008). Resulting from this, the international mining sector has undergone changes in global investment, ownership and demand, as well as national and local of extraction. In the last two decades there has been a dramatic growth in mining activity in many developing countries (Bebbington *et al.*, 2008a; 2008b).

In the case of the mining sector, I draw on two distinct geographies that have transformed the political landscape of several mineral producing countries in the global south – the accumulation of capital (land) for large-scale mine operations and the dispossession of rural livelihoods (land, water, fertile soils, fisheries and hunting rights) thereof. According to Bebbington *et al.* (2008), the intersections of these two distinct geographies go a long way in determining the uneven geographies of the relationship between mineral development and patterns of rural territorial change, and has fuelled

discourses on 'accumulation by dispossession' (e.g. Harvey, 2003; Bush, 2009), which is explored further in Chapter Two. In this section, I explore three aspects of resource geopolitics that have been used in this study – sovereignty, foreign capital and hegemony.

Firstly, I explore sovereignty as often demonstrated by nationalist policies and programmes in resource abundant countries. According to Wapner (1998, p.276), the notion of sovereignty translates into both the entitlement and the heterogeneous ability of states to pursue environmental and developmental policies within their own territories as they see fit. Considering that sovereignty is constructed and contingent (Biersteker and Weber, 1996), sovereignty over natural resources is often imagined as a state government or community such as indigenous people wresting exclusive control and self-determination over resources within a particular territory and using those resources as they see fit (Bruyneel, 2007). This concept of resource nationalism imagines an inward focus and a particular sovereign actor with the capacity to control resources in isolation from external relations (Emel *et al.*, 2011). According to Moody (2007, p.156), by the dawn of the twenty-first century, most untapped gold, copper, iron, bauxite, nickel and diamonds had been identified as effectively indigenous property. These nationally-controlled resources have been blamed for a number of Africa's illnesses such as poverty, corruption, dictatorship and war. These assumed detrimental effects have been named the 'resource curse' (Auty, 1993) and in some instances, the 'paradox of plenty' (Karl, 1997).

Investment in mineral exploration in Africa increased from 4% of global spending in 1991 to 17.5 per cent in 1998, and overall mining investment in sub-Saharan Africa doubled between 1990 and 1997 (Pegg, 2006). Gold mine production in Ghana increased 700% over the last two decades (Hilson and Yakovleva, 2007) with Ghana now accounting for about 5% of total gold production (Hilson, 2009). By 2008, the top forty companies included five from China, and two from each of Russia and India.

Secondly, foreign capital is contextualised in the form of multinational corporations investing in resource-rich but often poor countries. These investments include money, heavy machinery and expertise. It involves the transfer of tangible or intangible assets

from one country to another for the purpose of their use in that country to generate wealth under the total or partial control of the owner of the assets (Sornarajah, 2010). Large-scale mining for minerals such as gold, diamond and iron ore attracts funding on a scale beyond the affordability of the mineral producing countries (Watts, 2005). This leaves the mineral producing countries often at the mercy of the big and powerful multinational corporations. Post-development and political ecology theorists such as Escobar and Watts have blamed the problems of some mineral dependent countries such as Nigeria on the dominance and influence of foreign capital (Escobar, 2006; Watts, 2005).

From 1990 to 2001, for example, mining companies invested over US\$ 90,000 million in the developing world (Hayter *et al.*, 2003). This demand has led to increasing levels of activity from direct foreign investments in the mining sector in Africa, with the economic powers in the West playing a part in the regional governance of resources. Part of this governance is the pressure on mineral producing countries to liberalise their mining sectors. Accordingly, many mineral-producing countries adopted neo-liberal economic policies from the mid-1980s (normally imposed through Structural Adjustment Programmes [SAP] and Economic Recovery Plans [ERP]) which led to a geographical shift in investment in the 1990s away from mature targets in the developed world towards a small number of countries in the developing world (Bridge, 2004a; 2004b). Since they possess vast amounts of mineral wealth, African countries have opened up investment opportunities in the mining sector through reforms targeting Foreign Direct Investment from Europe, the US and Asia. With competing and often conflicting interest in the minerals of the continent, Africa has become a destination for fast-growing US and Chinese investment in oil and other mineral extraction projects (as evidenced by the establishment in 2009 by the USA of Africom, a Military Strategic Command Centre), as well as a target of European resource acquisition efforts. Conflicts between and among these powers may intensify in the years ahead—in most instances, to the detriment of host countries. As the global economic system has developed, it has become increasingly clear that the balance in global mineral supply is focused on Russia, USA, China and Africa, with the USA and China being the markets while Africa and Russia are supply bases. Efforts at mining sector liberalization have also ensured secure supplies from

mineral producing countries have led to a palpable increase in investment by corporations engaged in the extraction of minerals in the developing countries (Bebbington *et al.*, 2008a; 2008b) while that in developed economies declined (Bridge, 2004a; 2004b).

Since the 1990s, over ninety countries have rewritten mining and investment codes, largely as a result of the influence of the World Bank (Bridge, 2004a; 2004b; 2007). The industry has responded accordingly, and many developing countries have seen significant increases in investment. The political economy of the mining industry has made these mining law liberalizations so appealing to the mining industry. As multinational mining corporations have moved into the developing world to seek access to mineral deposits made available to them by mining law liberalizations, they have increasingly come into conflict with indigenous peoples inhabiting areas where mineral deposits are located (Ali, 2003). As Ballard and Banks wrote:

Most of the mining projects realized as a result of the 1980s exploration bonanza have been located in relatively remote or marginalized indigenous communities
(Ballard and Banks, 2003, p.288).

The third element of resource geopolitics outlined in this section is hegemony. Literature suggests that most resource-rich countries are heterogeneous in their political, social, cultural and economic structures, with sub-units constituting a uniquely identifiable and governable space (territory) and rule through the idea of community (Watts, 2005). Watts argues that forms of hegemony in these spaces are typically weak and contested, violent and conflicted and that communities are subject to different constellations of force and consent. Citing the example of Nigeria, Watts expresses the significance of hegemony in characterising the extractive sector in developing countries.

Weak, contested, violent and conflicted geographical spaces in Cameroon have received little attention in literature. The heterogeneous character of the country qualifies it into what Watts brands 'uniquely identifiable and governable spaces' and where the power, influence and authority are all demonstrated through the idea of community. The

government continues to conduct most of its business in secrecy; mining and mineral concessions are awarded without the knowledge of the communities concerned, and before any consultation takes place. There is growing discontent in the country over how wealth is distributed since political and economic power remain in the hands of a strong ethnic oligarchy. Many poor communities in mineral-rich segments of the country continue to be discriminated against, typical amongst which are the Baka Pygmies whose land rights continue to be ignored (Rupp, 2003). Such scenarios often breed struggles and conflicts, especially when large multi-national corporations enter the scene in search of minerals, and as Escobar (2006) argues, such struggles and conflicts often pit rich against poor, within regions, countries and transnationally, with the poor mobilising around, or in defence of local cultures and customs.

The Cameroon situation is unique as there has been no requirement that concessions are aligned with the government's plans for development, land use, ecological zoning, or watershed management. Nor has there been consultation with local populations before the granting of concessions, even though Cameroon is signatory to the International Labour Organization Convention 169, which stipulates the right of indigenous people to prior consultation and to free, prior, and informed consent before any relocation from their lands (World Wildlife Fund for Nature [WWF], 2010). Most of the mining concessions are concentrated in rural areas of the southern and eastern regions of Cameroon. This concentration introduces immense imbalances of power in the countryside between companies and communities, and raises issues about land use change and resources, thereby stimulating new ideas and debates on resource geopolitics in the area. These elements of resource politics have implications for development and the impoverished people in rural communities and are discussed in sub-sections 1.4.2 and 1.4.3.

1.4.2 Development

The term development has been approached in different ways, and attracts considerable critiques. The uses of the term and its interpretations are contextual; hence there has been no consensus to its definition. Rist (2002) argues that the principal

defect of most pseudo-definitions of development is that they are based upon the way in which one person (or set of people) envisions the ideal conditions of social existence. Similarly, Cowen and Shenton (1996, p.4) argue that development comes to be defined in a multiplicity of ways because there are a multiplicity of developers who are entrusted with the task of development. Scholars such as Escobar (1995) and Sachs (1992) have derided the use of the term development, challenging the very foundation and motivation for the term, calling instead for the dismantling of development (Escobar, 1995; Sachs, 1992). They view development as a western-led dogma of which the institutionalising assumptions should be rejected. Critics of development view the term itself as a problem rather than a solution (Rist, 2002).

Such arguments about development have helped to produce a system for the categorisation of countries in the post-1945 era. This system defines how development is conceptualised differently by both the North and South, as it views development as paving the way for the achievement of those conditions that characterises rich societies, agricultural modernisation, urbanisation and industrialisation. Consequently, people in different countries and regions began seeing themselves as underdeveloped, and then how to develop became for them a fundamental problem they had to address. This was substantiated through the deployment of countless strategies and programmes; governments designing ambitious development plans, institutions carrying out development programmes, experts studying development problems and producing repeated theories, foreign experts all over the place, and multinational corporations brought into the country in the name of development (Okon, 2011). Escobar (1995) argues that Third World reality has been defined by the discourses and practices of Western economists, planners, nutritionists, demographers and others, thereby making it difficult for people to define their own interests in their own terms and in many cases actually preventing them from doing so. These multiplicities of practices, institutions and structures have had a profound effect on the social relations, ways of thinking, and visions of the future of the Third World. According to Escobar (1995), development, has to be seen as an invention and strategy produced by the First World about the underdevelopment of the Third World and not only as an instrument of economic control over the physical and social reality of developing countries.

Despite the controversy, development continues to be used as a basis for policy and support by international and donor organisations such as the World Bank, DfID and the United Nations. Critics of development have called for a reassessment of the ways the West frames countries in the global South (e.g. Watts, 2004). This includes questions about what development is, who defines it, who directs it, and why. However, Simon (2006) cautions that the proverbial baby should not be thrown out with the bath water. He observes that these protests are often not really a rejection of development *per se*, but are rather aimed at specific, non-participatory interventions that threaten or undermine lives, livelihoods and environments in the name of development through displacement by aggrandised schemes and corporate greed. He further notes that such assertions take little account of the millions of people who have benefited from development projects and others whose legitimate aspirations for a better quality of life and more sustainable livelihoods are tied in with progressive and appropriate development programs. He suggests the way forward should be how to link local identities, practices and agendas to broader, multi-scale projects and campaigns for change that is critically post-developmental.

My research follows this approach as I view development as a series of interventions that target poverty and hardship of indigenous people as opposed to interventions that frame particular places or peoples as needing benevolent western-style intervention in order to secure their development. I therefore explore further the notion of poverty in the next section.

1.4.3 Poverty

Poverty is a complex phenomenon that is defined by a plethora of indicators and which can be studied from different perspectives. The multidimensional approach to poverty means differing ways of measurements. The United Nations defines poverty as the inability to get choices and opportunities, a violation of human dignity and the lack of basic capacity to participate effectively in society (Gordon, 2005). This definition characterises poverty as: not having enough to feed and clothe a family, not having a

school or clinic to attend; not having the land on which to grow food; no jobs to earn a living; not having access to credit; insecurity, powerlessness and exclusion of individuals, households and communities; susceptibility to violence; and living in marginal or fragile environments without access to clean water or sanitation (Gordon, 2005). Although the UN's definition is focused primarily on income, the lack of, or inadequacy of income is only one dimension but often still inappropriately used as the main or only indicator of poverty. The World Bank, on the other hand, defines poverty as 'pronounced deprivation in well-being, comprising many dimensions'. It includes low incomes and the inability to acquire the basic goods and services necessary for survival with dignity, encompassing low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of voice, and insufficient capacity and opportunity to better one's life (WB, 2014). This is founded on the UNDP's Multidimensional Poverty Index (after Alkire and Santos, 2010) based on ten indicators of health, education and living standards which shows both the incidence and intensity of poverty. The index measures deprivation and shows where and how poverty is being reduced. This is relevant to the understanding of ASM where the activity is largely seen to be poverty driven.

Poverty can be measured in both absolute and relative terms. Absolute poverty (also referred to as extreme poverty) - is a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information that threatens short term survival (UN, 1995). Relative poverty, on the other hand, relates to income inequality, and is measured as the proportion of a population with income less than a fixed proportion of median income (Ravallion, 1998; Bourguignon and Chakravarty, 2003). One of the main arguments in ASM literature is that the activity is poverty driven. Thus, poverty will be explored repeatedly in Chapter Two and other chapters within this thesis.

1.5 Methodological approach

My research questions and the gaps identified in literature in Chapter Two influenced the methodological design which is detailed in Chapter Four. I approached my research

from three underlying directions - the mixed methodology, the grounded theory approach and ethnography. After reviewing information from secondary sources, I used interviews, focus group meetings, observations and photographs to collect the empirical data presented in Chapters Five, Six, Seven and Eight. This approach allowed for flexibility in questions and answers, and for exploring wider avenues of inquiry. It began with a pilot study which informed the suitability of the research methods to answer specific research questions. The multi-method approach to data collection and analysis outlined in Chapter Four helped in providing insights into the structural challenges and complexity of the ASM sector in East Cameroon. The multiple methods also supported data triangulation and added rigour to the research process.

1.6 Positionality: Researching my kinsmen from the 'affluence' of the United Kingdom

Contextualising my role as a Cameroonian of *Bantu* ancestry researching the dynamics of ASM in the East of the country, another bantu region, reflects on being an insider, but at the same time an outsider as I am perceived by participants as someone based in the UK (believed by most people in Cameroon to be affluent, developed, offering many opportunities and a better place to live in) with western values. Measor and Sikes (1992) illuminate the significance of the researcher's personal context on the research process by arguing that there are ethical and a methodological failures in not recognising the role of the researcher in the construction of the research narrative. They suggest the need for the researcher to unpick and document their role in the research process as they are a part of the context. Similarly, Dwyer and Buckle (2009) suggests that it is important to consider the researcher within the research process, and that rather than consider this issue from a dichotomous perspective, researchers should occupy the position of both insider and outsider rather than insider or outside. I therefore document in this section my personal context and some of my reflections on how this context has influenced the research process.

I was born to a poor family in the South West Region of Cameroon, the epicentre of the 'bantu' people in sub-Saharan Africa. I studied up to university level in the mid-1990s, and started a career with Guinness Cameroon as an Environmental Coordinator. My job

exposed me further to most of Cameroon where I became familiar with the common problems facing many poverty-stricken parts of the country – the lack of adequate infrastructure and government support for farming and non-farming activities. I soon became a leading figure in my tribe and in 2007 was conferred with the tribal title of ‘Sessekou’ in the ‘Ekpe cult’ (Ekpe is the highest traditional institution in most parts of South Eastern Nigeria and South Western Cameroon). This title comes with respect, power, influence and authority over issues such as land access, ownership and control. The ekpe cult constitutes the *de facto* administration in many parts of the region, and is recognised as the customary authority in these areas by the Government of Cameroon and by other bantu-speaking tribes. I speak and understand a number of bantu dialects and I am familiar with the wider culture, customs and development challenges of bantu people across the country. I moved to the United Kingdom in 2001 where I have lived and worked for over 12 years. This has invariably influenced my views, beliefs and ways in which I perceive things, especially in my home country – Cameroon. As suggested by Mandiyanike (2009), I had to bear in mind the challenges of conducting research back in my home country as a returning student.

My background and experiences placed me in a unique position as an insider/outsider researching my kinsmen from United Kingdom, considered by most Cameroonians as the centre of the Western world. On the one hand, I was an insider who is a kinsman and a fellow bantu who grew up amongst his kinsmen and is familiar with the traditions and customs of the people, while on the other hand I could be called an outsider because I had received a western education and lived abroad for 12 years which meant I had adopted some western values. This position of insider/outsider came with benefits as well as some limitations in the research process, and influenced the choice of the research area, methodological design, analysis and ethical considerations which I explain in more detail below.

My ethnic background and work exposure in Cameroon influenced the choice of the study area. I had experienced first-hand the developmental challenges faced by the people. Furthermore, the East region has, in recent years, attracted interest from national and foreign investors due to its mineral wealth. As mining concessions are

allocated without the knowledge of, or consultation with, the local people who have occupied and exploited the area for several generations (Schwartz *et al.*, 2012), there is the imminent danger of the livelihoods of indigenous communities in the region being threatened as a result of an influx of national and multinational companies.

My exposure to two divergent life worlds greatly influenced my methodological design. My experience of living in Cameroon meant that the first issue I observed as I began my content analysis on ASM was a disconnection between the rhetoric in the literature and the realities on the ground. As such, from the outset, I attempted to address the paucity of information by designing a methodology that reflected realities and the context of the people. This involved different participants and presented a rich image of the social context of the people living in the East Region.

I started a pilot project in 2011 and subsequently phased my fieldwork (phase one in 2012 and phase two in 2013) to enable me to connect these realities with the literature and to enable me to design the most appropriate methodology that would effectively achieve the research objectives and address the gaps I had identified in the literature. Being an insider also required that the research provided a context within which I could test the data gathered against my historical and personal framing of the region. Having a good understanding of the dynamics and power relations within communities, knowledge about the territory, culture, tradition, religion and the unspoken agenda of certain groups, affected the way I conducted enquiries. For example, my awareness of role of village chiefs and ASM union leaders and their influence in the communities, meant that I approached my research participants and structured focus group discussions with such dynamics in mind. The multi-phased field work approach adopted was extremely useful because it allowed for a more holistic, flexible, and rigorous research. It also ensured that all issues, including format of the questions encountered during previous field visits were addressed.

Travelling to Cameroon to conduct my fieldwork came with the problematic distinction of being in the 'field' and being at 'home'. According to Mandiyanike (2009), home is where the heart is, but foreign students face a number of problems upon their return home to do research. Being home for my fieldwork was not the same as being at home

as the survey sites were quite different from the suburbs of Farnborough where I have spent the last 12 years; the socio-economic dynamics were also very different, which enabled me to approach the fieldwork with an outsider perspective in order to maintain objectivity throughout the research process. Yet, I still had a strong sense of belonging culturally and traditionally, which made me familiar with the settings of all the 24 communities I visited. This defined me simultaneously as an insider and outsider, both and neither (Gilbert, 1994; Mullings, 1999), and presented me with differing challenges - in terms of insider – outsider concerns and politics of representation, social differences beyond nationality or ethnicity and ethical concerns. Most of the 26 stakeholders and 389 artisanal miners I engaged with placed me in certain categories, sometimes adopting a subservient position because of my background as a bantu kinsman of high cultural and traditional status, and as a UK resident who is perceived to be affluent, with a western education and higher social standing.

The research participants tended to adopt such attitudes because I was perceived as educated, foreign-based and knowledgeable about the region, its people and cultures. Participants assumed that my knowledge was superior and looked up to me for confirmation that their views were acceptable. I was occasionally engulfed in the reflective exercise of separating my own views on ASM in the region, about which I felt strongly, and what the research participants were telling me. I had to respect the people and assisted in the inquiry without imposing my views. I constantly reflected on the ethics of the research process, and how I managed my relationships with the research participants because there was always a danger of influencing the views of the participants. These relationships were managed on a continual basis to ensure an appropriate balance in my relationship with the research participants. Nonetheless, our shared attributes such as nationality, ethnicity, kinship and my ability to engage in regular conversations in the local dialects and French enabled me to build bridges and be accepted as one of the researched. At the same time, I was mindful of Sultana's (2007) view that conducting international fieldwork involves being attentive to histories of colonialism, development, globalization and local realities, to avoid exploitative research or perpetuation of relations of domination and control. Thus, throughout my time in the field, I made sure ethical concerns permeated the entire process of the

research, from conceptualization to engagement. I was especially mindful of negotiated ethics in the field.

There were certain benefits associated with being an insider. Ball (1997) notes that the strength of an insider in the research process is the knowledge the researcher brings concerning the history and cultures, awareness of body language, connotations and slogan systems operating within the cultural context of the group under study which may be undiscoverable to outsiders. Being an insider had some positive influences - the participants and I share a common cultural, traditional and historical background which eased my acceptance by the participants; and my knowledge of the historical, cultural and social contexts of the study area helped shape the way I structured and conducted the interviews and focus group meetings. I was accepted easily because participants perceived me as one of theirs. Most of the village chiefs, ASM union leaders and *chefs de chantier* (the title given to the heads of a mining pit or camp) introduced me to the mining communities as 'our brother from London', which in African terms means I am considered to be part of the community. This opened up many opportunities for access to some privileged information from village chiefs which I would not have been privy to, had I been an outsider. Being an insider also enriched the ethnographic approach adopted during the research because of my ability to blend in unobtrusively and observe research participants in ways that did not require them to change behaviour as they would, if an outsider, or say a Caucasian researcher was doing the research. Trust and rapport are crucial to the success of case study research (Glesne, 1989; Marshall and Rossman, 1989) and this was evident in my research because of the confidence I had built in the participants as one of them. This also presented some ethical concerns for me because the line in making distinctions between what information was given to me for the purposes of my research and what information participants gave to me because I was an insider with implied trust was blurred. On many occasions, some chiefs and ASM union leaders would say "don't let anyone know I said this. I am telling you because you are my brother". This gave me the opportunity to reiterate the purpose of my research and the information required. They were also reminded that all participants would remain anonymous throughout the research process.

A key challenge associated with being an insider is the tendency to overlook certain aspects of the researched due to familiarity (Edwards, 2002). My knowledge and understanding of the area and its people meant familiarity with certain issues which could be overlooked. Basic details which an outsider may identify and interrogate may not have been immediately obvious to me because it is familiar, and taken for granted. Such familiarity can produce what Edwards (2002) refer to as data blindness or myopia. While I acknowledged this possibility after the first phase of my fieldwork, I may not ascertain the extent to which this affected the inquiry process.

I have no doubt that my personal context in this study influenced the research process and outcomes. My engagement with the 26 stakeholders and 389 artisanal miners guided the positionality I assumed during the research process. This is essential because although researchers like myself might interact with artisanal miners and other stakeholders seeking to observe and understand the dynamics of the activity, my engagement with the researched contributed to the identities that are bestowed on me in the process. It is within the context of the identities bestowed on researchers, how they perceive themselves and the participants, as well as the roles they assume, that doors are opened or closed for researchers to gain access to the knowledge they are seeking (Jankie, 2004). Contextualising my positionality pushed me to adopt a self-reflective stance in my research by acknowledging the multiple roles, identities and experiences I have in relation to the participants of the study.

1.7 Layout of thesis

This study comprises nine chapters. This introductory chapter is followed by Chapter Two, which provides a conceptual framework and pulls together relevant literature drawn from the theoretical fields of mining (specifically artisanal and small-scale mining in sub-Saharan Africa), informal economies, land rights and sustainable rural livelihoods. It critically examines debates surrounding policy and support of the ASM economy in sub-Saharan Africa, paying particular attention to the intersection between ASM and poverty reduction. The chapter concludes with a conceptual framework for the research, highlighting key issues from the literature which my research seeks to address.

In Chapter Three, I set out the context of my research by providing background information about the complexity of Cameroon and the East Region in particular. The chapter presents an overview of the East Region's natural resource endowment as well as the developmental challenges. It concludes with a brief description of the six mining areas studied within that region.

Chapter Four outlines the methodological foundations that governed my research. I outline the overarching approach of the research, taking into account the data collection and analysis processes. I then detail the research design and data collection methods used. The chapter further documents the analytical processes through which the data was categorised, conceptualised, and integrated, and provides details of the coding procedure applied in the research.

After establishing the conceptual framework, research area and the methods adopted, the following four chapters (Five, Six, Seven and Eight) provide the empirically informed materials and analysis of this research. Each chapter reflects the key themes that emerged from my data as well as the secondary research and policy-oriented literature I engaged with. Chapter Five presents the findings from the empirical research on understanding the dynamics of ASM in the East Region. It presents the organisational, demographic, economic, social and cultural aspects of activities as a precursor to understanding this important non-farm rural sector in the country. The empirical detail presented in the chapter focuses on providing an in-depth analysis of activities to enhance understanding the sector's dynamics.

Chapter Six interrogates the relations between land tenure and governance in the mining sector of the country. The chapter delves into the interplay between policy, governance and mining, and analyses the factors that influence access to, and use of, land for ASM with particular focus on governance, ethnicity and social exclusion.

Chapter Seven presents and discusses the income and expenditure pattern of the miners in greater depth, and by mining district, age group and gender. The Chapter discusses the outcomes of these incomes for the miners' livelihoods, lifestyles and the local economy; and how this could inform policy evolution in the ASM sector in Cameroon.

Chapter Eight presents ASM as a catalyst for sustainable rural livelihoods in the East Region. The chapter analyses the livelihood implications for ASM workers in the area, drawing on the sustainable rural livelihood concept discussed in Chapter Two. The chapter analyses the livelihood capitals available to the miners and how they are combined by local communities to earn a living. The livelihood strategies in ASM communities are also examined, and a strong link between ASM and smallholder farming established. The chapter further discusses the outcomes of ASM as a livelihood and concludes with an assessment of the viability of ASM as a livelihood as well as the vulnerability of miners' overdependence on the activity.

Finally, Chapter Nine summarises the key findings of the research with respect to each of the main research questions posed in this introductory chapter. It also highlights the main contributions that this thesis has sought to contribute to knowledge. It concludes with recommendations for future research activities.

2 Chapter Two – Conceptual Framework

2.1 Introduction

Chapter One outlines the main objectives of this thesis and provides justification for its focus and the research gaps it addresses. This chapter provides a theoretical background to my research and identifies the main bodies of literature on which it draws. The chapter develops a theoretical underpinning for analysing and presenting my empirical research outcomes in Chapters Five, Six, Seven and Eight. Chapter One illuminates the need for location-specific and detailed ASM studies that would generate baseline information that could inform ASM policies and support schemes in sub-Saharan Africa. In order to fill this gap effectively, my thesis comprises four interconnected theoretical insights: (1) ASM, (2) land rights, (3) informal economies, and (4) sustainable livelihoods that are drawn on to guide this study. It focuses on the intersection between these bodies of literature, their definitions and implications as well as their critiques by academic and policy analysts.

2.2 Artisanal and Small-Scale Mining

Artisanal and small-scale mining takes place throughout the world, but is particularly widespread in developing countries in Africa, Asia, Oceania, and Central and South America (Hentschel *et al.*, 2003). Although national governments have, in recent years, been increasingly aware of the sector's importance and contribution to poverty alleviation and national income, not much has been done in terms of agreeing to a universally acceptable definition of ASM, legalise, recognise and support the sector, as is the case with other sectors such as smallholder farming (Hilson and McQuilken, 2014). Despite these changes, the implementation of legislation remains problematic at a local level and many miners do not have faith in the ability or commitment of their governments to provide assistance (Hentschel *et al.*, 2003). This is further exacerbated by the fact that the international development community has continued to overlook ASM in most international, regional and local economic policies and programs (Hilson and McQuilken, 2014). In this section, I review critically key aspects of ASM scholarship, reflecting on why the activity has failed to garner support from governments, donor and

aid agencies on one hand, and how this thesis contributes to the empirical evidence required to drive such change.

2.2.1 Definition, scope and populations

Artisanal and small-scale mining dates back to pre-colonial times and is viewed as a viable economic activity for local populations. It is described as low-tech, labour-intensive mineral extraction and processing (Hilson, 2003), and as involving a mixture of eclectic groups of people (Hilson and McQuilken, 2014). The subject was first introduced in 1972 in a UN publication entitled *Small Scale Mining in the Developing Countries* (UN, 1972; Hilson, 2009). While considered to be an afterthought by the donor agenda at the time, the report is assessed to have proven to be extremely important in highlighting, for the first time, the nature of ASM, its economic significance in developing countries, and underscored the importance of facilitating the design and implementation of relevant laws and policies through the identification and description of the sector's significant characteristics (Hilson, 2009). Despite the breakthrough at this conference, fundamental issues relating to the definition and scope of ASM remain, and have led to different stakeholders around the world defining and characterising ASM differently.

While large-scale mining is easy to define, defining ASM, on the other hand, is not quite as straightforward. A handful of attempts have been made at defining ASM, but a consensus on its definition has yet to be established. In some countries, a distinction is made between artisanal mining that is purely manual and on a very small scale, and small-scale mining that is more mechanised and on a larger scale. According to Hentschel and Walters (2002), ASM refers to mining by individuals, groups, families or cooperatives with minimal or no mechanisation, often in the informal sector of the market. In countries such as Mali, Niger and Burkina Faso, small-scale mining is differentiated from artisanal mining by the presence of permanent, fixed installations established once the existence of an ore body is confirmed (Hentschel and Waters, 2002).

The UN defines ASM as any single unit of mining operation having an annual production of unprocessed material of 50,000 tonnes or less as measured at the mine entrance (UN, 1971). This context has been echoed by the United Nations Environment Programme (UNEP), which defines ASM as “mining conducted by individual miners or small entrepreneurs with limited capital investment and production” (UNEP, 2013, p.3). These output-based definitions contrast with the poverty and technology-based approach of the Common Fund for Commodities (CFC), which describes small-scale miners as poor people; individuals or small groups who depend upon mining for a living; who use rudimentary tools and techniques (e.g. picks, chisels, sluices and pans) to exploit their mineral deposits (Common Fund for Commodities, 2008). This view is echoed by the World Bank, which asserts that small-scale mining is largely a poverty-driven activity, typically practised in the poorest and most remote rural areas of a country by a largely itinerant, poorly educated populace with few employment alternatives (World Bank, 2003). Both UN and CFC definitions provide an incomplete picture of ASM in the continent, as they do not take into account the possibility of miners recovering reasonable quantities of minerals with minimal inputs, as discussed in Chapters Five and Seven. Such generalisation is also reflective of the existing knowledge gaps in the sector, and how studies like this could help bridge such gaps.

Other attempts at defining ASM have made use of the limited investment volume of the operations, the small workforce or the limited mineral production. The local definitions vary from country to country according to the macroeconomic situation, the geological framework, the mining history and the legal conditions (Hentschel *et al.*, 2003). While challenging, recognising the different definitions and views about ASM is an important pathway to understanding the structural differences that exist at national and local levels where the activity takes place, such as the East Region of Cameroon. Such understanding is vital in effectively formulating policy, regulations and support schemes that address such dynamics.

In relation to the demographics of mining, Hentschel *et al.* (2002) notes that ASM is as important as LSM, particularly in terms of the numbers of people employed in the former. This means that ASM can play a crucial role in poverty alleviation and rural

development. As most of those involved in the activity are thought to be poor, ASM represents the most promising, if not the only, income opportunity available to these people. Understanding the role of ASM in poverty alleviation and rural development in remote parts of the world such as the East Region of Cameroon, means getting a good grasp of the number and types of people involved in the activity.

Over the last four decades, there has been a lack of clarity over the actual number of people employed in ASM. Many factors make it difficult to ascertain the full extent of the number and types of people involved in the activity, including: the informality of the sector; the lack of official statistics; the number of seasonal and occasional workers and definitional issues (Hentschel *et al.*, 2003). At the dawn of the millennium, the ILO estimated that worldwide, 13 million people were directly engaged in ASM, and that the livelihoods of an additional 80-100 million people depended on it (Hentschel *et al.*, 2002). This widely-quoted figure for numbers involved in ASM is provided by the International Labour Organisation's landmark report, *Social and Labour Issues in Small-Scale Mines* (ILO, 1999). It projects that an additional 100 million could depend indirectly on the sector's activities for their livelihoods (ILO 1999). More recent works provide expanded estimates of at least 13-15 million (Banchirigah, 2008, Veiga and Baker, 2004), and over 100 million (World Bank, 2013). These estimates also assume that there is a proportionately larger number of people depending on ASM indirectly. This variation in estimates underscores the need for location-specific census-type activities, such as this research, to unearth the dynamics of the sector. Such dynamics in terms of numbers is discussed in Chapter Five, and for the first time, provides the most reliable estimate of ASM numbers in the district studied.

2.2.2 Technical aspects of ASM operations

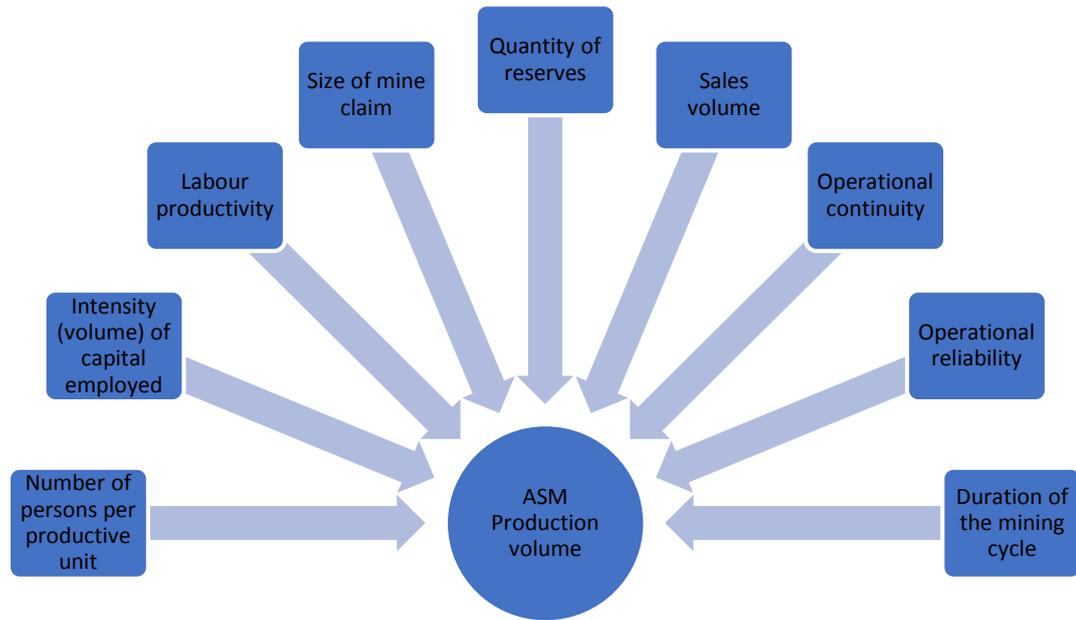
The technical aspects of ASM operation in many parts of the world vary considerably. Such disparities have made it possible to group together the criteria used in differentiating ASM activities. According to Chaparro (2000), this categorisation does not exclude the simultaneous use of more than one criterion, neither do they condition their application, the existence of specific references in the respective mining law or,

the existence of a law for small mining (Chapparó, 2000). There are countries that have programmes for small-scale mining but which are not considered in the mining law of the country and there are countries with special laws that apply different treatment to small-scale mining, as in the case of Brazil with its *Garimpo* or *Garimpogen* law. With this clarification in mind, Chaparro (2000) notes that the criteria most often used are those shown in Figure 2.1.

According to the CFC (2008), ASM is characterised by the use of manual labour to extract minerals from open pit, underground or riverine sources. Typically, few if any health and safety standards are in place and mine planning and management practices are rudimentary at best. The mines are frequently under the control of a local traditional authority, a minerals trader (or group), or, in some cases, military or militia personnel. Land may be ceded to artisanal miners by governments but, but as in the case of Cameroon, this is relatively rare. Where ASM is legal, licences are usually restricted to national citizens (CFC, 2008, p.9). ASM miners extract precious metals from easily accessible deposits using basic tools. It is undertaken in different forms – with screens on riverbanks, by divers and panners in rivers, in pits and dugouts or in mines abandoned by large-scale mining companies (Clausen *et al.*, 2011). In many cases, the activities are labour-intensive and could be undertaken profitably by almost anyone, and has unique potential to secure livelihoods and reduce poverty on a large scale (Clausen *et al.*, 2011). This view is yet to be explored extensively within policy making circles due to the lack of data or some success stories. My research emphasises the need for location-specific data and other census-type activities. Although some aspects of operation are common around the globe, there is no detailed literature on location-specific features. Without detailed case studies such as this one on the East Region, support and intervention schemes will have little empirical data to draw on.

Notwithstanding the seamless attempts to categorise the technical features of ASM operation, some authors such as Hentschel *et al.* (2002) and (Hentschel and Waters, 2002) have suggested some key characteristics (Table 2.1) to qualify the activity across a broad range of countries.

Figure 2.1: Typical criteria used in defining ASM production volumes



Source: Based on Chaparro (2000)

Table 2.1: Key features of ASM activities

Features of ASM activities	Detailed description
Types of deposits and Productivity	<ul style="list-style-type: none"> • Exploitation of marginal and/or very small deposits, which are not economically exploitable by mechanized mining • Low level of productivity • Chronically lack of working and investment capital
Mechanisation and exploitation methods	<ul style="list-style-type: none"> • Inefficiency in the exploitation and processing of the mineral production (low recovery of values) • Lack or very reduced degree of mechanisation, great amount of physically demanding work
Mining rights and permits	<ul style="list-style-type: none"> • Mostly working without legal mining titles
Educational Level	<ul style="list-style-type: none"> • Deficient qualification of the personnel on all level of the operation
Economic empowerment and livelihoods	<ul style="list-style-type: none"> • Low level of salaries and income • Periodical operation by local peasants or according to the market price development • Lack of social security
Health, safety and environment	<ul style="list-style-type: none"> • Low level of occupational safety and health care • Insufficient consideration of environmental issues

Adapted from Hentschel et al., (2002).

The international community has been concerned with the artisanal and small-scale mining sector for the past four decades, leading to increased policy debates on the subject. Since the early 1970s, understanding of ASM has increased and the approaches taken have evolved as shown in Table 2.2 below.

Table 2.2: Historical perspectives on the evolution of the discourse on ASM

Period	Approaches for dealing with ASM
1970s	Definition issues
1980s	Technical issues
Early 1990s	Towards integration of technical, environmental, legal, social and economic issues
1990s	Special attention on legislation of ASM sectors
Mid – Late 1990s	Relation between large mining companies and ASM; gender and child labour issues.
2000s	Community related issues and sustainable livelihoods

Source: After Hentschel et al., (2002).

2.2.3 Motivations and needs

Although they usually use rudimentary exploration and extraction techniques, mining allows them to earn cash income for their households, supplement meagre farming revenues, and in the case of coal, obtain energy. It is estimated that the world’s 13 million artisanal miners produce 25% of the world’s gold, the rest being produced by large-scale mining companies (UNIDO, 2009). Artisanal miners exploit over 40 different minerals but gold and diamonds make up about 60% of all artisanal mining. For instance, in the Democratic Republic of Congo and Sierra Leone, artisanal gold and diamond mining make up 75% of national mining sector production (CASM, 2008). The make-up of a typical ASM community in sub-Saharan Africa has been described by Hilson (2009) as consisting of workers with different skills and educational backgrounds - many were made expendable under structural adjustment and reform: unable to find viable replacement employment, tens of thousands of retrenched civil servants, teachers and redundant large-scale mine workers have migrated to rural areas in search of employment (Hilson and Maponga, 2004; Hilson and Potter, 2005; Banchirigah, 2006; Hilson, 2009; Chachage, 1995; Dreschler, 2001; Mondlane and Shoko, 2003).

Other studies have reinforced this position, with arguments of how, in the case of the West African sub-region, mining has stimulated significant urban–rural migration, particularly the movement of groups of ‘skilled’ and ‘semi-skilled’ individuals. Most of the people employed in ASM camps across sub-Saharan Africa, however, are rural inhabitants; and, whilst there are competing narratives over how ASM fits into the region’s de-agrarianisation ‘puzzle’, the evidence suggests that each corresponds to a unique set of circumstances (Hilson, 2009). In the case of the East Region of Cameroon, there is no evidence so far, of the involvement of skilled individuals in the ASM sector, nor is there evidence of urban-rural migration, as discussed in Chapter Five.

The motivation and needs of ASM workers is framed in two sub-categorizations – rush and pull, which are explored further in section 2.2.3.1 below.

2.2.3.1 Rush type and demand pull type school of thought

In recent years, the literature on artisanal and small-scale mining has grown substantially, drawing a multifaceted picture of ASM activities. A much debated issue, for example, is individuals' motivation to engage in the sector. Hilson (2009, p.3) differentiates in this context between *push* and *pull* factors. The *demand-pull* view claims that people opt to go into mining in order to generate higher economic returns. This view is informed by accounts of rushes and fortune-seekers, and it calls attention to possibilities for accumulation and investment (Bush, 2009; Grätz, 2009) and rational risk/reward calculations (Jønsson and Bryceson, 2009). Research in Tanzania, for example, has confirmed that incomes from small-scale mining are significantly higher than farming incomes (Bryceson and Jønsson, 2010, p.7), and that working in mining or in mining-related services reduces the likelihood of household poverty (Fisher *et al.*, 2009, p.34).

One argument in the ASM literature which continues to wield significant influence amongst donor agencies, despite applying to a minority of situations, holds that the ASM sector is comprised of *rush-type* activities - that ASM in sub-Saharan Africa is chaotic and entrepreneurially driven (WB, 2005; USAID, 2005; Havnevik *et al.*, 2007). This view is embedded in the *demand-pull* school of livelihood diversification—that people are subsisting adequately from farming but choose to ‘branch out’ because they believe

diversified income portfolios will bring them greater economic returns—and has largely been informed by accounts of *rush-type* diamond mining activities in countries like Sierra Leone and the Democratic Republic of Congo (Maconachie and Binns, 2007).

Furthermore, other arguments include views about ASM workers being described as ‘fortune seekers’ who migrate to ASM communities to improve their social statuses - to marry; to invest in housing and/or livestock; and/or to secure monies to finance a business in their home towns. Such is the case in countries like Benin Republic, as illuminated by Hilson (2009). A similar narrative is echoed in Burkina Faso, where Werthmann (2004) asserts that women have moved to small-scale gold mining camps because they believe that they can earn far more money ‘pounding ore’ than working in sectors such as catering or tailoring (Werthmann, 2004: In Hilson, 2009)..

2.2.3.2 Distress or push type school of thought

A number of arguments on why people engage in ASM are couched more in the *distress-push* type argument—the idea that people are ‘branching out’ into ASM because they face precarious financial situations, and are desperate to escape poverty (Hilson, 2009). Some researchers (e.g. Maponga and Ngorima, 2003; and Mondlane and Shoko, 2003) argue that artisanal mining is solely a seasonal activity that provides supplementary earnings to farming. They do not see a radical reorientation of rural livelihoods unfolding in rural sub-Saharan Africa but rather an economy that continues to be based on smallholder farming activities, whose operators still wish to engage in agricultural activities but who have been forced to diversify their income portfolios in order to survive in a liberalised market. According to Start (2001) this view is rooted in the belief that the ‘de-agrarianisation’ issue in sub-Saharan Africa has been seriously ‘over-hyped’ because there is by no means a permanent shift of livelihood taking place.

The *distress-push* view further argues that people engage in artisanal mining mainly because they are desperate to escape poverty and compelled to search for alternative livelihoods (Heemskerk, 2005; Tschakert, 2009). This is the case in many regions where ASM has emerged as the only viable activity in the wake of structural adjustment, deteriorating employment opportunities and increasing pressure on land. Smallholder

farming has become less attractive as a livelihood, and artisanal mining may either substitute for revenues from agriculture or complement them, for example as a seasonal activity (Andrew, 2003; Maconachie and Binns, 2007; Banchirigah and Hilson, 2010; Banchirigah, 2008; Hilson, 2010; Hilson, 2011). In other regions, artisanal mining has become a permanent segment of the rural economy; a 'deeply-rooted industry which offers a range of economic opportunities for people from all walks of life' (Hilson, 2009, p.3; Banchirigah and Hilson, 2010; Hilson, 2010). This is arguably the case in the East Region, which, as shown in Chapter Five, ASM is an activity undertaken all year round, and is the main livelihood activity for thousands of rural families.

It is also argued that mining not only provides livelihoods for the miners themselves, but also for a range of actors working in related services such as transport, catering, leisure, prostitution tool-making and petty trade (Hilson and Garforth, 2012). In this vein, mining boosts local and rural economies and generates substantial economic and social returns (Bush, 2009, p.61). This multiplier effect in neoclassical economic terms implies that ASM may be viewed not just as a temporary livelihood, but as a lifelong career, as Bryceson and Jønsson (2010) have demonstrated in Tanzania. They argue that career paths in ASM follow from the miners' own organizational constructs and individual decision-making, which guides them towards labour specialisation.

Beyond individual livelihoods, it is also argued that ASM could provide significant benefits to governments through taxation and access to foreign exchange (Hentschel *et al.*, 2002, p.52). The supposed condition for this to materialize, however, is that ASM should be formalized, i.e. that it should be registered, organized and controlled by a central state system (Siegel and Veiga, 2009, p.51). While legal provisions for ASM activities exist in many countries, including the Cameroon, as will be discussed in Chapter Six of this thesis, in practice such activities often remain informal. One important reason for this is that few zones are legally open to artisanal mining. As Hilson (2009, p.2) states, "mineralized areas are now in short supply, and many large-scale miners are unwilling to cede unused portions of their concession. This has caused significant agitation in rural communities, at times precipitating violent clashes between mine management and encroaching artisanal miners". Whilst such occurrences have

been reported in many sub-Saharan countries such as the Democratic Republic of Congo (DRC), Liberia, Tanzania and Ghana, where LSM is fully operational, this is yet to be experienced in the East Region of Cameroon (as detailed in Chapter Five, Section 5.6) where LSM is still at a nascent stage

2.2.4 ASM, gender and child labour

Accounts of the involvement of women and children have dominated ASM literature over the last decade. This literature dwells largely on the negative aspects which is largely couched on the view that ASM is gender bias and characterised by child labour. Gender issues and the involvement of child labour underscores the need for these dynamics to be factored into ASM studies, thereby generating data that could stimulate policy debates and intervention programs. Literature also suggests that ASM policies, programmes, and projects that are perceived to be gender neutral can, upon implementation, actually widen gender gaps and worsen rather than improve the development outcomes that governments, mining companies, miners' groups, and communities are seeking to achieve (Hinton, 2011a). Achieving the development potential of ASM therefore requires a solid understanding of how all subsets of the community are engaged with and poised to benefit or experience risks from ASM. While a number of different dimensions of marginalization might prevent different community groups from participating fully in ASM, this Toolkit responds to the clear lack of tools available for understanding the gender dimensions of ASM. The analytical framework presented in this Toolkit was developed specifically for understanding gender and ASM; however, the questions posed in it may be a starting point for understanding other dimensions of marginalization in ASM.

Among several million artisanal and small-scale miners active around the world, the proportion of women miners was estimated at about 30% in 2003 (Hinton *et al.*, 2003). Women involvement in ASM varies from country to country. Generally, women are thought to make up between 10% and over 50% of ASM workers (Eftimie *et al.*, 2012). In Latin America, they comprise approximately 10–30%; in Africa, women make up anywhere from 40% to about 100% of the workforce (Jennings, 1999; Lahiri-Dutt, 2008).

Women are also heavily involved in the mining and processing of many industrial minerals, such as clay in Bangladesh; stone aggregate, limestone, and dimension stone in Uganda; stone aggregate and sand in India; stone, sand, and clay in Ghana; and marble in Zambia (World Bank, 2008; Babu, 2004; Dreschler, 2001; Hilson, 2001; Hinton, 2006; and Sahnaj, 2004).

Accounts of women participating in ASM activities have featured in a number of studies, in which a number of reasons are advanced for their participation. The ILO describes how the impact of structural adjustment programmes, low commodity prices or drought on private and public sector employment, trading, farming and inflation has led many people, especially women who relied on subsistence agriculture, to seek new, alternative or additional paid employment for a better quality of life, or more usually, just to survive (ILO, 1999).

In Southern African Development Community countries, one study on small-scale mining found that only 10% of miners in the formal sector are women, with the remainder engaged in subsistence mining. Because women are so minimally involved in the formal sector, they typically have little experience. Also, because of their domestic roles, they have little flexibility to follow mineral rushes. Therefore, women usually work near home, in less-profitable seasonal panning activities (Dreschler, 2001). This perception and rather out-dated view underrepresents women's involvement in ASM. Recent studies (e.g. Buxton, 2012) indicates that women and children constitute between 35% to 45% of ASM workforce in many countries.

Women play a much larger role in artisanal mining than in the LSM sector, and their engagement typically declines as the degree of organization and mechanization increases (WMMF, 2000). Women's roles vary between and within countries and frequently depend on the location (proximity to villages or homes) and mineral being mined (Hinton, *et al.*, 2003; Lahiri-Dutt, 2007). In addition to working directly in mining, women often work part-time at informal mining operations and occupy ancillary roles (e.g., as cooks and service providers). Because women are more frequently associated

with transporting and processing materials, as opposed to digging, they are not always identified as miners (Susapu and Crispin, 2001). Women's involvement is often invisible, because it frequently takes place in the domestic sphere. There thus may be significant discrepancies between the estimated and actual numbers of women involved in ASM (Wasserman, 1999). Furthermore, women typically have intensive domestic responsibilities, routinely working four to eight hours more than men per day, which adds to their workload (Eftimie *et al.*, 2012). The largely unrecognized and undocumented involvement of women in many stretches across sub-Saharan Africa such as the East Region of Cameroon is an element of ASM that extensive and location-specific investigation, and has been addressed in Chapter Five.

Despite women's significant involvement in ASM, men control and own most assets. Evidence overwhelmingly indicates that land (inclusive of mining areas), incomes from mining and other activities, mining and farming tools, homes, crops, and sometimes even children are owned and controlled primarily by men. Similarly, the benefits from these resources also predominantly accrue to men. In whatever productive capacity, women are critical to community stability. And both women and men in ASM communities are critical to community cohesiveness, morale, and general well-being, acting as agents in facilitating positive change (Eftimie *et al.*, 2012). This view fails to take into account the cultural settings in many countries where men, women and children are regarded as indivisible (households). As such, the categorisation of ownership of assets, such as in this study, is deemed unnecessary.

Understanding the differential impacts and benefits of ASM on women and men in the broader community can play a role in strengthening policy, reform and in achieving development outcomes. The labour division of men engaged in digging and women in hauling, processing, and service provision has been documented for metallic mineral and gemstone production in Bolivia, Brazil, Burkina Faso, Colombia, India, Kenya, Lao PDR, Mozambique, Peru, the Philippines, Sudan, Suriname, Venezuela, Zimbabwe, and elsewhere (Chakravorty, 2001; Dreschler, 2001; Heemskerk, 2000; Hentschel *et al.*, 2002; Jennings 1999; Lujan, 2004; Veiga, 1997; Veiga and Hinton, 2002).

A topical issue that has blighted ASM over the years is the involvement of children. The ILO defines child labour as ‘work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development’ (ILO, 2005). It has been argued that child labour is now a widespread phenomenon in many ASM communities across sub-Saharan Africa (Hilson, 2012). The discussion about child labour in ASM began in the late 1990s, following international press reports about the phenomenon in Colombian coalmines, which sensitized the international community (Hentschel *et al.*, 2003). This led to a ban on Colombian coal, especially by Germany, which also made use of this situation to protect their own highly subsidized coal-mining industry. Since then child labour in ASM has become a high-priority issue. With its new Convention 182 (to eliminate the worse forms of child labour - including in mining) the ILO’s International Programme on the Elimination of Child Labour (IPEC) is focusing on this issue. Surveys in several countries including Guinea, Madagascar, Burkina Faso, Niger, Tanzania, Bolivia, Colombia, Ecuador, Peru and The Philippines have generated data that is relied upon for policy intervention. IPEC is also trying to implement its programme to prevent and progressively eliminate child labour in small-scale traditional mining in South America, where children start washing gold from the age of three. In other parts of the world such as in sub-Saharan Africa, children get involved in ASM from the age of six, where they could be seen breaking rocks with hammers or washing. It is also reported that some children as young as nine work underground, and by 12, boys are working underground in many countries and do the same work as adults. In the Cerro Rico in Potosi, Bolivia, half of the 8,000 miners are children and adolescents (Hentschel *et al.*, 2003).

While the involvement of children in ASM is regarded as the worst form of child labour, Hilson (2012) argues that the widespread child labour issue in the region’s ASM sector is a product of a combination of cultural issues, household level poverty and rural livelihood diversification. Given the cultural heterogeneity and development-related challenges facing rural communities in the East Region of Cameroon, the focus of this study, I agree with Hilson that ASM’s child labour problem in sub-Saharan Africa is far more nuanced than international organisations and policy makers have diagnosed. The empirical evidence presented in Chapter Five (Section 5.3.3.2) argues this case.

2.2.5 ASM and environmental impacts

Environmental degradation through mercury pollution, forest clearing, and lack of land rehabilitation typically follows in the wake of gold strikes. When miners move on, these problems are usually left behind. Closely associated with the life of a small-scale miner are health hazards such as injuries from accidents, exposure to sexually transmitted diseases, silicosis, and mercury poisoning (Fisher, 2007). The extensive use of mercury, a persistent contaminant, in the ASM sector is a growing environmental issue (Clifford, 2012). Mounting concern over findings which point to the widespread use of mercury to amalgamate gold in ASM having significant environmental and health-related impacts has fuelled the launch of numerous donor-funded and government-backed projects aimed at minimising its use. Most have taken the form of educational and technical assistance, implemented specifically to stem emissions from the industry and introduce miners to safer practices. The most significant environmental impact from the use of mercury in ASM operations is the contamination caused by gold miners' use of elemental mercury, which is employed to amalgamate and obtain gold from processed extracted material. Mercury has been used in the extraction of gold (and silver) for centuries. Pliny the Elder (23-79 A.D) gives one of the first known written account of people using 'quicksilver' to amalgamate gold in his work, *Natural History*, and reveals that, for the most part, the method used by the Romans is identical to that used by small-scale miners today:

All substances float on its [mercury's] surface except gold, which is the only thing that it attracts to itself. Consequently, it is also excellent for refining gold, as if it is briskly shaken in earthen vessels it rejects all the impurities contained in it. When the blemishes have been expelled, to separate the quicksilver itself from the gold it is poured out on to hides that have been well dressed, and exudes through them like a kind of perspiration and leaves the gold behind in a pure state (Nriagu, 1994, p.11).

Mercury is a non-essential element and an extremely harmful toxicant. Considerable research has demonstrated that exposure to mercury levels not considerably above naturally occurring, or 'background', amounts can have detrimental effects on

organisms at all ecological levels (WHO, 2003). Mercury occurs naturally in trace quantities within soils, sediments, air, and water bodies. Although natural concentrations may be quite variable, dependent upon localised conditions such as the mineralogical and tectonic characteristics of the area and specific physiochemical properties of soil, or deposition and inputs from the surrounding catchment systems in water bodies, as suggested, elevated concentrations of the element are usually attributable to anthropogenic activity, with ASM being one of the largest global contributors. Thus, this adversity tends to be the unacceptable face that blights ASM gold operations throughout the world. Although the environmental impacts of ASM are indeed small, when compared to those of LSM, an understanding of location-specific challenges provides the basis for educational and other intervention and support schemes.

2.2.6 ASM and conflicts

Some studies have associated ASM with conflicts and other forms of mass protests (e.g. Bebbington *et al.*, 2008a). In some sub-Saharan African countries, ASM is associated with violent conflicts and frequent state-operated security sweeps (Dorner *et al.*, 2012; Hilson and Garforth, 2013). While there may be several dimensions of ASM-related conflicts and mass protests, for the purpose of this study, only ASM-LSM conflicts will be explored.

Geenen (2013) argues that the first clue to understanding ASM-LSM conflicts lies in legislation and policies. As discussed in Chapter Six (Section 6.3), large mineralized areas have been given in concession to industrial companies, leaving little room for artisanal miners (albeit the latter operating inside these concessions undisturbed). This has been the result of the liberalization and privatization trends incorporated in the African mining codes since the 1990s (Campbell, 2004). The 2001 Mining Code similarly promotes large-scale mining and foreign direct investment (Mazalto, 2005). Whereas there are some legal provisions for ASM, in practice these are rarely implemented, and they provide little tenure security. However, for a thorough understanding we must go beyond legislation and policies, and seek explanations for the observed gap between

law and practice. These explanations often lie in state capacities to enforce the law, and in incentives for miners and other actors to comply with it.

Also, ASM and LSM actors tend to have distinct conceptions of development, property and legitimacy (Geenen, 2013). Industrial companies like to insist that they hold legally acquired permits and that state law is on their side. Local communities and artisanal miners, on the other hand, assert that they possess traditional right to work the land, as they seek recourse to customary and other sources of law (Hilson, 2002; Andrew, 2003). In this struggle, large-scale actors are advantaged not only by the above-mentioned policies, but also by their superior financial resources and, better access to information and technology (Geenen, 2013). This marginalizes and frustrates the artisanal miners, which leads Carstens and Hilson (2009) to explain the tensions between ASM and LSM in terms of grievances. They focus on a specific examples in Geita district, Tanzania, but also make reference to cases in Ghana, Mozambique and DRC (Carstens and Hilson, 2009).

Geenen (2013) conceptualizes the discourse and practices of artisanal miners in terms of protests against ‘accumulation by dispossession’ taking an approach similar to that taken by Bebbington *et al.* (2008a, p.901), The latter interprets the resistance of local communities against mining companies as protests “against development oriented towards economic growth, and for development as a process that fosters more inclusive economies” (Bebbington *et al.*, 2008a).

2.2.7 Emerging trends: ASM and smallholder farming

The emergence of a vast body of literature illuminating patterns of livelihood diversification unfolding across many rural stretches of sub-Saharan Africa has stimulated wider discussions linking ASM and smallholder farming. Haggblade *et al.* (1989) produced one of the earliest reviews, contesting at the time that rural Africans derive 25–30% of their incomes from nonfarm activities. Parallel studies by Reardon *et al.* (1988, 1994), drew upon experiences from Burkina Faso, providing highly illustrative accounts of rural farmers ‘transitioning’ into non-farm activities and contesting, inter

alia, that for some families as much as 75 % of household income originates from non-farm sources (also see Hilson and Garforth, 2013). These studies are generally thought to have spurred further conceptual investigations.

Bryceson (1996) suggested at the time that rural sub-Saharan Africa was experiencing 'de-agrarianisation' – a reorientation of livelihoods, occupational adjustment and spatial realignment away from agrarian patterns. Ellis (1998, 2000) and Barrett *et al.* (2001) subsequently built upon the empirical evidence from the late 1980s and early 1990s, turning attention away from the rural livelihood diversification phenomenon itself and towards more critical discussions on drivers of diversification. They disaggregated the motivations for 'branching out' into the rural non-farm economy into 'pull factors', or decisions to exploit complementarities which typically entail a strategic repositioning of a household; and 'push factors', sets of motives linked to distress that are commonly associated with risk aversion. Some ASM hotspots such as Ghana featured marginally in the literature on rural livelihood diversification in sub-Saharan Africa (Hilson and Garforth, 2013), while emerging ASM countries such as Cameroon are not even mentioned. Despite such failings, the general discussion on 'pull' and 'push' factors provides a basis for understanding the livelihood diversification unravelling in communities such as those in the East Region where ASM is now the primary income generating activity.

According to Hilson and Garforth (2012, 2013), the challenge with relying entirely on this literature to better understand livelihood diversification patterns is that, despite being the most important rural non-farm activity in sub-Saharan Africa, ASM has failed to feature, and continues to be treated rather superficially, in mainstream analyses on the subject. Their argument centres on the view that there is no clear explanation why, for example, small-scale gold mining, which has the potential to generate considerable incomes for impoverished African families, has been overlooked in this context in favour of what are clearly less appealing non-farm activities. They attribute the failure of scholars to bring to light the 'interconnectedness' of smallholder farming and ASM in rural sub-Saharan Africa to views long harboured and propagated in both the literature and policy-making circles. Recent studies on livelihood diversification across the region

have concluded that ASM is replacing smallholder farming as the principal income source in parts of region. Structural Adjustment policies have removed support for the country's smallholders, devalued their produce substantially and stiffened competition with large-scale counterparts, widely reported as the aftermath of the Berg Report (Hilson and Garforth, 2013). Arrighi (2002, p.7) summarises the Berg Report's views on Africa's economy, specifically the agricultural sector, thus:

"Its [The Berg Report's] assessment of the causes of the African crisis was highly 'internalist', sharply critical of the policies of African governments for having undermined the process of development by destroying agricultural producers' incentives to increase output and exports. Overvalued national currencies, neglect of peasant agriculture, heavily protected manufacturing industries and excessive state intervention were singled out as the 'bad' policies most responsible for the African crisis. Substantial currency devaluations, dismantling industrial protection, price incentives for agricultural production and exports, and substitution of private for public enterprise – not just in industry but also in the provision of social services – were singled out as the contrasting 'good' policies that would rescue Sub-Saharan Africa from its woes".

2.2.8 ASM formalisation

Despite its proven ability to alleviate hardship in several stretches of rural sub-Saharan Africa, in many cases with little formal support, ASM, quite surprisingly, continues to feature peripherally in regional poverty alleviation and development strategies. Although national governments are becoming increasingly aware of the sector's importance as a means of poverty alleviation and a generator of national income, not many governments have formally recognised the sector and facilitated the environments under which ASM workers operate. The implementation of legislation remains problematic at a local levels and many miners do not have faith in the ability or commitment of their governments to provide assistance (Hentschel *et al.*, 2002).

The international development community has been concerned with the artisanal and small-scale mining sector for the past 40 years. As understanding of ASM has increased,

the approaches taken have changed. Donors have also underestimated the challenges with formalising and supporting artisanal operators engaged in the extraction and/or processing of comparatively less ubiquitously occurring—more ‘localised’—commodities such as gold, diamonds and gemstones. For example, despite claims of helping to inform miners of the value of diamonds, and monitoring diamond royalties and fees, the USAID-sponsored Peace Diamond Alliance has done little to improve the organisation of ASM activities, overall, in Sierra Leone; nor, given the high level of foreign intervention and prevalence of international—and often illicit—buying networks, will the initiative facilitate miners receiving fair payments for diamonds (Hilson, 2009).

According to Siegel and Veiga (2009), formalization means speaking of individual and group rights: the right to mine, the right to land title, and the right to minerals. A formal title is the only thing that can give miners transferable capital against which micro-loans can be financed. As Hinton (2005a, p.144) observes, ‘with legal land tenure, miners are more likely to access credit for operational improvements, and access support from government agencies’. Rights not only bestow benefits on miners; legal recognition, they also imposes duties to conform to environmental, labour, and human rights standards. Siegel and Veiga’s view of rights and duties is that a formal system is sometimes characterized as a win–win for both miners and the state - the state receives the benefits of taxation and reduced vulnerability for a part of the population and the environment; miners benefit by receiving the collateral—in the form of land title—that empowers them to access better technology. In effect, property rights are the basis of poverty alleviation, serving as the first step toward turning miners’ assets into capital.

Using the writings of Hernando De Soto’s, Siegel and Veiga characterises the term formalization in the context of ASM; examine the relationship between formalization of ASM and economic development; and propose ways for international development and donor agencies to contribute to the formalization process. They view the term formalization as referring to many things, including: resolving lapsed or overlapping property laws that define the status of miners, and the question of who has the right to mine, in a state of legal vagary. In this context, formalization is primarily about creating

a federal legislative framework for small-scale mining. There is a second meaning of formalization that refers mostly to the process of registering, organizing, and tracking mining activity in the field. In addition to benefiting from taxation the state receives by registering miners, formalization is in this sense understood as an effective intervention strategy—one that initiates contact with miners, and enables the collection of microeconomic data to guide project development by international development agencies (Heemskerk, 2005).

Another aspect of literature that has impinged on ASM formalisation is De Soto's concept of dual economies - the legal and the extra-legal, which helps put into perspective the situation with ASM operatives across the developing world. The modern resurgence of informal ASM is a rural component of a greater, mostly urban, movement, in which migrants from failing rural economies are creating informal, often brilliant, ways to survive outside the authority of the legal system. This argument by Siegel and Veiga conceptualises, ASM as nearly always progressing in advance of the legal system, which arrives only after customary practices and informal social arrangements are established. Most artisanal gold mining is part of the extra-legal economy, and occurs in many of the world's rural areas where the authority of centralized property laws is limited. In many places where a ministry of mines attempts to govern mining activity, there is just one person administering hundreds of square miles of land and tens of thousands of people. Consequently, there is very little in the way of “planned” artisanal gold mining. The extent to which mining is integrated in the formal economy varies greatly from place to place; depending on the particular country, informal ASM is either tolerated or branded a criminal activity.

Whilst portrayed as anarchic, ASM areas generally evolve elaborate informal property systems that fill the void of authoritative federal or provincial law, as noted by Siegel and Veiga (2009), Hilson *et al.* (2007) and Fisher (2007) in remote mining areas in Ghana and Tanzania, respectively. Though informal, the staked boundaries of gold claims are effective, if imperfect, property rights systems, managed by cooperatives, associations, and organizations that function like mini-municipalities distributing mineral rights, resolving conflict, supplying equipment, and so forth. As argued above, formalization

provides miners two forms of stability. First, it allows them to predict their taxation rather than having to pay the hidden cost of bribes; and second, it reduces stress over the cost of rebuilding after military actions taken against them (Siegel and Veiga, 2009). Thus, it is perceived that formal property rights are the basis of a miner's access to legal redress when rights are violated by a governments or LSM companies, as they frequently are. Without a system of rights, there is little to prevent a state or corporation from unilaterally evicting miners.

2.3 Informal economies

2.3.1 Conceptualising informal economies

A number of labels have been used by scholars to refer to the term 'informal economy'. It is called irregular economy (Fernman and Fernman, 1973); the subterranean economy (Gutmann, 1977); the underground economy (Simon and Witte, 1982; Houston, 1987); the black economy (Dilnot and Morris, 1981); the shadow economy (Frey *et al.*, 1982); and the informal economy (McCrohan and Smith, 1991). Within the media, terms such as invisible, hidden, submerged, shadow, irregular, non-official, unrecorded or clandestine are frequently used (Losby *et al.*, 2002). The common thread is that these activities are not recorded or are imperfectly reflected in official national accounting systems.

The concept of the informal sector was first coined by an ILO study of urban labour markets in Ghana (Hart, 1973). It was subsequently used in ILO reports of labour conditions in other African cities and by the World Bank in studies of urbanisation and poverty (Sethuraman, 1981). In its application to issues such as equity, economic opportunity and social development, the term 'informal economy' first came into widespread use as a means of describing a dualistic economic structure found in developing countries (Losby *et al.*, 2002). Such an economy involves both the mainstream formal economy and an unofficial economy within which economic transactions occur outside traditional channels and deliver explicit economic and social benefits (Losby *et al.*, 2002). The concept has evolved to encompass various types of

cash and non-cash transactions in both developing and industrialised economies – transactions that benefit both poor and rich (Devey *et al.*, 2006).

The literature of informal economies is marked by considerable disagreement over the conceptual definition of informal work (Losby *et al.*, 2002). This dispute is often fuelled by different academic disciplines. For example, economists and tax specialists sought to estimate the total size of the informal economy, focusing on unregulated but cash exchanges (Schoepfle *et al.*, 1992). Within such context, it would be difficult to estimate the size of ASM economies as such cash exchanges are rarely captured. On the other hand, anthropologists, sociologists and development experts (e.g. Simon, 1984) are broadly concerned with the informal economy's role as a household economic strategy or as a source of community cohesion. This perspective includes both cash and non-cash exchanges between and within households (Letivan and Frelman, 1991).

2.3.2 Characteristics of the informal sector

In view of the fact that informal economies are defined differently, a more appropriate way of understanding the concept is by identifying its characteristics. The most commonly identified characteristics in literature include: legality, exchange of cash, unreported income and conditions of labour. I therefore review each of these characteristics, reflecting on how they underpin the understanding of ASM as an activity in the informal sector.

Income generated by economic activities may be legal or illegal. According to the US Department of Labour, legal and illegal are defined as:

Legal: Income from activities that are legal. For a portion of activities that produce legally-sourced income, the appropriate reporting requirement to a taxing or regulatory authority may produce goods or services whose sale or exchange is not prohibited (US Department of Labour, 1992, p.2).

Illegal: Income generated from activities that are illegal in themselves. By its very nature, illegally-sourced income is not recorded in official statistics
(US Department of Labour, 1992, p.2).

Some transactions in the informal economy may be based on an exchange of services, which is often called bartering or swapping. Either way, there is no official record of this transaction, making it an illegal one.

Another key aspect of the informal economy is that cash is most commonly exchanged between parties rather than cheque, payroll statement or credit card. The purpose of issuing currency, rather than bank credit, is to avoid creating a record of activities (McCrohan *et al.*, 1991, p.22-23). The nature of this arrangement is captured in the popular term of 'off-the-books' or 'under-the-table' which bring to mind the image of a person receiving payment in a way that is not traceable. This view fails to consider some pertinent dynamics of ASM – its operational environments lacks such sophistication as to allow the use of modern modes of payments and transfers such as cheques.

The third aspect of the informal sector is unreported income or wages. Both the individual who work informally and the employing organisation follow this arrangement. The final characteristic of the informal sector is the conditions under which workers are employed. According to Castells and Portes (1989, p.13), labour laws, health conditions, safety hazards or the location of activities disregard zoning laws. They view the informal sector as an inferior alternative to formal sector employment in terms of earnings, security and protection from exploitation regarding labour standards.

2.3.3 Importance of the informal sector in sub-Saharan Africa

In recent years, many African countries have experienced a growth revival, but this has not necessarily generated stable, regular or desirable jobs; unemployment remains high among youth and the adult African population, with little attention paid to the role of informal sector such as ASM in fostering growth and creating jobs in impoverished parts of the continent such as the East Region. The African Development Bank [AfDB] (2013) notes that the informal sector contributes about 55% of sub-Saharan Africa's GDP and

80% of the labour force; 9 in 10 rural and urban workers have informal jobs in Africa and most of such employees are women and the youth. The prominence of the informal sector in most African economies stems from the opportunities it offers to the most vulnerable populations such as the poorest, women and youth. Even though the informal sector is an opportunity for generating reasonable incomes for many people, most informal workers are without secure income, employment benefits and social protection. This explains why informality often overlaps with poverty. For instance, in countries where informality is decreasing, the number of working poor is also decreasing and vice versa (AfDB, 2013).

Beyond poverty and social issues, the prevalence of informal activities is closely related to an environment characterized by weaknesses in three institutional areas, namely taxation, regulation and private property rights. Higher taxes and complicated fiscal process may prevent informal sector operators from formalizing their activities. Long requirements for registration as well as licensing and inspection requirements are also barriers faced by the informal sector. Moreover, limited access to capital is an important constraint for operators working in the informal sector. Lack of skills, education and training are also impediments to the formal sector in Africa. Other factors include the limited access to technology and poor infrastructure. Furthermore, the informal sector doesn't seem to be on the development agenda of African countries or their multilateral development partners.

Organizing the informal sector and recognizing its role as a profitable activity may contribute to economic development. This can also improve the capacity of informal workers to meet their basic needs by increasing their incomes and strengthening their legal status. This could be achieved by raising government awareness, allowing better access to financing, and fostering the availability of information on the sector.

2.4 Land Rights

2.4.1 Definition and context

The role of land or rights in economic development has long been a central theme in the economic and political studies. This is buttressed on the notion that well-defined individualistic property rights, codified and protected by the state, provide a central precondition for economic growth. Arguments for this view can be found in the work of classical economists such as Adam Smith. Later on, this view was revived in the works of other economists (Coase, 1960; Demsetz, 1967) and, within a historical context, by others such as North (1981).

Macro-level studies have suggested evidence that institutions governing property are an important factor in explaining growth and the lack thereof in parts of the world (Acemoglu *et al.*, 2001). This macro-evidence is mainly based on cross-country growth regressions in which rather crude aggregate data are used to develop highly suggestive narratives. While these narratives receive much attention in policy circles, they converge on the following: institutions, including providing secure and transferable property rights, matter for development (Dercon and Krishnan, 2000).

In this section, I review some of this literature, focusing on the rights to one crucial asset in most poor developing countries, land, focusing on narratives of rural land rights in Africa. With poverty persistence most notable in Africa, and with most of the poor still living off the land, this focus remains relevant.

North provides the standard definition of land rights in an economic institution as:

a set of rules, compliance procedures and moral and ethical behavioural norms designed to constrain the behaviour of individuals in the interests of maximizing the wealth or utility of principals (North, 1981, p. 81).

A property rights system provides such a set of rules, assigning rights to use specific goods or assets from a non-prohibited set of uses. Full private property rights assign and recognise the exclusive use of goods to particular individuals, bounded by some

constraints, such as that this usage is not violating the rights of someone else. They give an individual access rights to the stream of benefits from these goods and the right to transfer this right to others in whatever way they choose. These rights are secure and inalienable so enforcement is never in doubt. However, many property rights are not as complete or individualistic as described here. For example, property rights could be communal, whereby rights are shared, or private, but restricted, such as in the context of particular types of customary law, whereby rights cannot be wholly ceded by those to whom an asset has been allocated.

Standard results from welfare economics as reflected in the welfare theorems rely on well-defined and enforceable property rights to endowments and commodities to reach its conclusions on efficiency of the competitive equilibrium. They are private in the sense that control over the use of all endowments and commodities are assigned to specific agents. Private property rights internalize all incentives providing a route to efficiency (Coase, 1960). Two aspects of this need to be emphasised in order to understand the problems related to the inefficiencies caused by incomplete property rights.

The first aspect relates to the security of the right to benefit from the use of the endowments and commodities. For example, the stream of benefits from use of endowments in production will accrue to the owner, as will be the costs. There is also no uncertainty surrounding whether someone else, another individual or the state, will expropriate these commodities, by taking over the right to benefit from them.

A second, related aspect addresses the right to trade or exchange the right to the benefits itself: there should be no restrictions to realising gains from trade. Within the context of otherwise perfect conditions for competitive equilibrium, these related features ensure perfectly aligned incentives for efficient use of resources, with opportunities to realize full gains from trading which are necessary for efficiency. These efficiency benefits can also be shown to exist in response to marginal improvements in property rights.

Besley (1995) provides a simple but comprehensive theoretical exposition of these two basic features of property rights and their implication for incentives to investment in

assets, such as land. He shows that marginal improvements in security (expressed as a reduction in the probability of expropriation) or improvements in the ability to trade the asset increase investment incentives. He also shows that within the context of imperfect credit markets, for example due to agency or enforcement of contract problems, there is a third benefit of improved property rights on investment: if land is easier to collateralise due to improved rights, then the bank can lower interest rates, increasing land investment.

However, improving property rights do not occur in a vacuum outside the market; rather, strategic behaviour may aim to try to influence the allocation of rights. Besley (1995) discusses how land rights can be influenced by investment: in particular contexts, such as Ghana in his case, improving the land may result in an increased claim to the land, reducing the risk of expropriation. Deininger and Jin (2006) present a related model in which improved security may have ambiguous effects on investment if investment can increase both productivity and future security (Deininger and Jin, 2006). More generally, if improving land rights involves actions by the state or another specific agent then this process may provide incentives for directly unproductive investments, such as corrupt side-payments, which may offset any efficiency gains. Improving land rights may also be costly, requiring, for instance, substantial investments in legal institutions. Consequently, a relatively highly efficient, 'rich' economy may be needed to develop such legal institutions, limiting the scope for land right improvements to stimulate efficiency in poorer contexts.

Furthermore, a multitude of alternative, non-market based coordination mechanisms exist to complement imperfect markets. Examples include informal reciprocal insurance institutions or interlinked credit and other factor markets. The theory of the second best shows that addressing one market failure – such as improving the security of land property rights – is not necessarily going to lead to an increase in efficiency (see Chapter Five). For example, as Goldstein and Udry (2006) argue, the finding of some inefficiencies in the customary land rights system in the area of Ghana that they were studying does not necessarily prove the case for recommending the introduction of full private land property rights in this context (Goldstein and Udry, 2006). This is demonstrated by

Banerjee *et al.*, (2002), who show that increased land tenure rights may not always lead to efficient outcomes, within the context of market imperfections that offer a role for share cropping contracts, their model suggests that a landlord's threat to evict a tenant may encourage the tenant to produce greater yield by increasing his effort to an efficient level (Banerjee *et al.*, 2002).

2.4.2 Land rights and ASM

Throughout the world, the long history of mining is characterized by struggles for access and control of mineral resources. A cursory review of the gold and diamond rushes of 19th century in North America, Australia, and Africa illustrates how contentious property rights issues were at the heart of disputes pitting mining interests seeking access to subsurface resources against those holding multiple and overlapping rights to surface resources (USAID, 2011). This literature describes how mining interests have fought against those of indigenous peoples, cattlemen, and others with long-standing surface rights. Whether in the gold fields of 19th century California or in the oil-rich delta of present day Nigeria, these struggles are about who has rights of access to resources and the distribution of benefits found therein (Ali, 2010; Collier, 2007; Mann, 2011; Stewart, 2009).

The economic structure and technical processes of the ASM economy shapes the very nature of land tenure. ASM operations lack the technical means to mine deposits deep underground and, for this reason, are forced to remove large amounts of overburden to attain the level of the mineral deposits. As a result of the mining operation, the land is severely altered. This land is also exploited by many other resource users like farmers, herders, and fishermen. These resource users possess a "bundle of rights" to the land: complex and overlapping rights to land, trees, and water resources often derived from long-held historical claims (USAID, 2011, p.3).

In countries where mineral resources and the mining sector contribute significantly to national economic output or provide an important source of revenue to the government, the state may strongly assert and exercise its claim to mineral rights, bringing it into conflict with a dispersed, impoverished, and poorly organized class of

artisanal and small-scale miners. Governments usually prefer to lease rights of exploration and mining to large-scale mining companies with sufficient financial and technical resources. Leases and concessions to mining areas in these cases are usually well-specified. However, shallow deposits, such as those found in alluvial zones, are a source of much conflict. Large-scale mining ventures may obtain concessions to mine these deposits with heavy equipment. Yet artisanal and small-scale miners may already be extracting mineral resources in these areas. The history of ASM is replete with cases of clashes between well-financed corporate interests armed with legally recognized permits and the large numbers of individual miners holding no legal documentation to their claims. Building complementary relations between the large-scale and artisanal mining sector will be a long process of negotiation (International Council on Mining and Metals, 2010). This has been the focus of several debates on land rights in artisanal mining communities.

Most World Bank-funded land reforms on sub-Saharan Africa follow the advice of one of its economists, Hernando De Soto, following his publication of *The Mystery of Capital* (2000), which attributes the failure of capitalism in the Third World to the lack of property titles. While this is hardly a new argument, it is likely to acquire renewed momentum because his is a very influential voice in Washington. Latin American governments, which have long been active in distributing title deeds, will continue to implement this policy on an even larger scale (Gilbert, 2012). The message that De Soto conveys is that:

Without legal title, property is not secure....People do not invest in homes or communities where they are insecure. They cannot sell them or pass them on to their children. Perhaps worst of all, without property titles, homeowners cannot use their dwellings as collateral to borrow money that would help them escape poverty (Gilbert, 2012 p.iii).

When governments show political will to develop their state, land law can be developed to recognize both statutory tenure and other tenure arrangements (customary, informal), which require sound field work to identify the nature and characteristics of those other forms of tenure. The making of laws without capacity for secure

enforcement, is doomed to fail. In a customary environment such as the East Region of Cameroon where individual/customary property rights is widely practised, governments need to demonstrate political will in recognising such long established regimes. When this is not the case, formalization, in whatever form, could be counterproductive and detrimental to ASM economies which are relied upon by thousands of rural families.

Further, reflecting on property rights arrangements as they exist on the ground creates mechanisms to wisely convert these arrangements into rules and on inventing registration and mapping facilities that can cope with different kinds of tenure and in a quick and cheap manner (Van Der Molen, 2012). It also establishes a land information system which is compatible and part of wider cadastral regimes of countries. In most ASM communities in sub-Saharan Africa, experiences from the past demonstrate that titling does not work (Reeve, 2001., Gilbert, 2002., Home and Lim, 2004., Royston, 2004., Bledsoe, 2006., Cousins and Hornby, 2007., Sjaastad, 2008., Payne *et al.*, 2008., Rutten, 2009), a key consideration that De Soto neglects. Similarly, De Soto fails to recognise the role of customary tenure and management as existing legal institutions, although not under the formal 'bell jar'. (Gilbert, 2002., Sjaastad and Cousin, 2008., Assies, 2009., Bruce, 2012). De Soto also neglects the skewedness in access to land in many countries (Benjamin and Sjaastad, 2003., Cousin, 2007), where formalizing is not a simple confirmation of informal rules. Some authors believe that formalization legalizes thievery, dispossession and colonial grabbing and neglects the gender issue (Joireman, 2007., Sjaastad, 2008., Bruce, 2012).

De Soto relies on political will and functional governments, while current statutory legal frameworks exclude the poor and lack of enforcement hampers providing protection (Bromley, 2008., Besley, 2009., Otto, 2009). De Soto also ignores the view that the 'poor' are not an homogenous group (there are 'rich' poor, and "poor' poor), and as such, the 'silver bullet' solution he proposes seem unworkable in most rural communities (von Benda-Beckmann, 2003., Bruce, 2012).

2.5 Sustainability and Sustainable Livelihoods

2.5.1 The Concept of Sustainability

There are many differing definitions of the concept of sustainability (Gatto, 1995; Allen *et al.*, 1991). The World Commission on Environment and Development (WCED), in its 1987 report entitled, *Our Common Future* states that:

Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987, p.24).

This definition has broad appeal and little specificity, but some combination of development and environment is found in most attempts to describe sustainable development. This definition has been accepted as *de facto* ever since. Since then, there has been a mass of literature generated in various fields which has resulted in more specific application of the concept, such as sustainable agriculture, sustainable livelihoods, and sustainable transport (see for example (Carney, 2002; Litman and Burwell, 2003; Guijt, 1998). Serageldin (1993, p.2) observes that:

Sustainability is fundamentally about the choices that people make and the associated consequences and thus notes that —people are the instruments and beneficiaries, as well as the victims of all development activities.

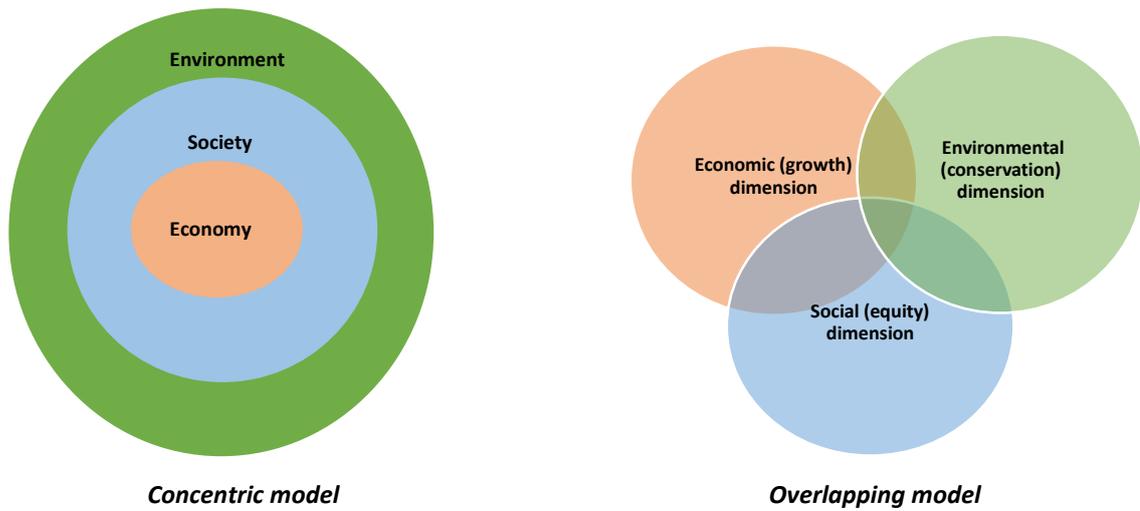
Over the years, the scope of the sustainable development debate has grown substantially and this has led to an increasing diversity of interpretations. In 1992, at the Earth Summit in Rio de Janeiro, which proclaimed the primacy of sustainability and also that sustainability needs to be considered fully from its social, economic and environmental dimensions saw 179 countries endorse Agenda 21, a cross-national agreement on working towards sustainable development (Larson, 1994).

Local authorities in signatory countries were asked to prepare, by 1996, Local Agenda 21 (LA 21) plans, setting out policies and action to realise the objectives of Agenda 21

within their area of responsibility. Agenda 21 challenges local authorities to adopt policy goals encompassing not only sustainable development but also incorporating participative, collaborative processes, which involve local communities in defining their own sustainable futures. A fundamental challenge at the centre of the LA 21 process is translating global ideals on sustainable development into locally defined actions. This has been rather more challenging than the rhetoric from Rio seemed to acknowledge. While it is difficult to define sustainability for an operation that exploits a non-renewable resource, Agenda 21 and experiences from past and ongoing small-scale mining projects can help to define the desirable conditions of a sustainable small-scale mining sector. They should include: ASM activities should make a positive contribution to rural and regional development; activities should operate legally in harmony with national mining sector development policies and existing legal frameworks; operations should comply with international social standards, such as social security, occupational health and safety, labour regulations (including ILO conventions about child labour), access to social infrastructure (schooling, medical, etc.) and an acceptable level of income; operations should be environmentally sound; there should be no conflict between small miners and local communities and no degradation of traditional values; there should be harmony between small and large mining operations; exploitation should concentrate on products with high recovery values and systematically develop these deposits; and there should be continuous operation over a longer period of time (Hentschel *et al.*, 2003). Given the great importance of the workforce of ASM in the rural context, the potential for a beneficial contribution of ASM to sustainable development in communities such as the East Region of Cameroon is very high.

As shown in Figure 2.2, sustainability and sustainable development is generally modelled on three pillars (environmental, economic and social dimensions) that have been used to facilitate the comprehension of the term.

Figure 2.2. The relationship between the three dimensions of sustainable development



It is most often conceptualised in the literature in two ways (McKenzie, 2004): the concentric model of sustainability and the overlapping model of sustainability. The concentric model (Figure 2.2) provides a representation of how the relationship between the environmental, social and economic spheres should be understood, portraying their mutual interdependence and our ultimate reliance of the social and economic spheres on the physical environment. The environment encompasses the other two spheres and this give pre-eminence to the physical environment over the other two.

A more recent and widely accepted mode of thinking is that the three spheres should be viewed as equally dependent of each other and should be represented as such. This is depicted in the overlapping circles model. These three spheres or dimensions are often thought of as overlapping and mutually dependent goals:

- a) To live in a ways that is environmentally sustainable or viable over the long term (McKenzie, 2004);
- b) To live in a way that is economically sustainable, maintaining living standards over the long term (McKenzie, 2004); and
- c) To live in a way that is socially sustainable, now and in the future (Dillard *et al.*, 2009).

Despite the elevation of the social (at least in theory) to equal influence in the sustainability debate, much less attention is generally paid to it than is given to economic and environmental concerns. McKenzie (2004) thus argues that it is far more difficult to quantify social sustainability than it is for economic growth or environmental impact, and consequently he suggests that it is the most neglected dimension of the sustainability agenda. He further argues that any all-purpose indicators of social sustainability would be too general to be useful, and specific indicators need to be developed for particular contexts. The core focus of this study is on the livelihood aspects of sustainability.

The sustainable livelihoods idea was first introduced by the Brundtland Commission on Environment and Development as a way of linking socioeconomic and ecological considerations in a cohesive, policy-relevant structure. The 1992 United Nations Conference on Environment and Development (UNCED) expanded the concept, especially in the context of Agenda 21, and advocated for the achievement of sustainable livelihoods as a broad goal for poverty eradication. It stated that sustainable livelihoods could serve as 'an integrating factor that allows policies to address 'development, sustainable resource management, and poverty eradication simultaneously' (UNDP, 1997).

Most of the discussion on Sustainable Livelihoods so far has focused on rural areas and situations where people are farmers or make a living from some kind of primary self-managed production. Chambers and Conway (1992) proposed the following composite definition of a sustainable rural livelihood:

A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Chambers and Conway, 1992, p.7).

While the definition of a livelihood can be applied to different hierarchical levels, Krantz (2001) stressed that it is used most commonly at the household level. Even then it is also important to recognise variations in wellbeing and access at an individual or intra-household level, as well as at the broader levels of the extended family, the social group, and the community.

Of the various components of a livelihood, the most complex is the portfolio of assets out of which people construct their living. This portfolio includes tangible assets such as stores (e.g., food stocks, stores of value such as gold, jewellery, cash savings) and resources (e.g., land, water, trees, livestock, farm equipment), as well as intangible assets such as claims (i.e., demands and appeals which can be made for material, moral or other practical support) and access, which is the opportunity in practice to use a resource, store or service or to obtain information, material, technology, employment, food or income (Scoones, 1998).

A distinction is made between environmental sustainability, which refers to the external impact of a livelihood on other livelihoods, that is its effects on local and global resources and other assets, and social sustainability, which concerns the internal capacity of a livelihood to withstand outside pressure, that is to cope with stress and shocks and retain its ability to continue and improve over time (Bebbington, 1999; Scoones, 1998). Stresses are defined as pressures which are typically continuous and cumulative and therefore to some extent predictable, such as seasonal shortages, rising populations or declining resources, while shocks are impacts which are typically sudden, unpredictable and traumatic, such as fires, floods and epidemics. Any definition of livelihood sustainability, the authors argued, has to include the ability to avoid, or more usually to withstand and recover from, such stresses and shocks (Scoones, 1998).

Since Chambers and Conway's definition of sustainable rural livelihoods, much effort has been made in strengthening the concept further, both analytically and operationally. Particularly significant in this context are both the contributions made by the Institute for Development Studies (IDS) and the Department for International Development (DfID).

The IDS's outline of the framework to analyse sustainable rural livelihoods was further elaborated by Scoones especially on three of the elements of the framework: livelihood resources; livelihood strategies, and institutional processes and organisational studies. These three elements of the sustainable livelihood framework are discussed in detail below.

2.5.2 Livelihood resources

Livelihood Resources are the basic material and social, tangible, and intangible assets that people use for constructing their livelihoods — are conceptualized as different types of 'capital' to stress their role as a resource base '...from which different productive streams are derived from which livelihoods are constructed' (Scoones 1998, p.7). As shown in Figure 2.3, the sustainable livelihood framework is identified by four types of capital which are defined below.

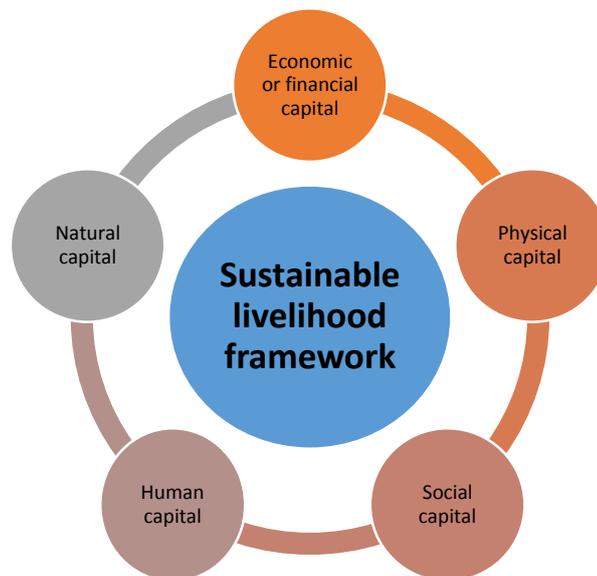


Figure 2.3: The main facets of the sustainable livelihood framework

- *Natural capital* – the natural resource stocks (soil, water, air, genetic resources, etc.) and environmental services (hydrological cycle, pollution sinks, etc.) from which resource flows and services useful for livelihoods are derived;

- *Economic or financial capital* – the capital base (cash, credit/debt, savings, and other economic assets, including basic infrastructure and production equipment and technologies) which are essential for the pursuit of any livelihood strategy;
- *Human capital* – the skills, knowledge, ability to labour and good health and physical capability important for the successful pursuit of different livelihood strategies;
- *Social capital* – the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring co-ordinated actions. The ability of these capitals in enabling miner’s livelihoods has been discussed in Chapter Seven (Section 7.2);
- *Physical Capital* – this may include tools and equipment, as well as infrastructure such as roads, markets, hospitals and schools. Access to these as well as other forms of infrastructure such as water supply will influence people’s ability to construct their livelihoods.

Distinguishing between different types of ‘capital assets’ draws attention to the variety of resources, which are often used in combination, that people rely on for making a living. According to Scoones, identifying what livelihood resources (or combinations of ‘capitals’) are required for different livelihood strategy combinations is a key step in the process of analysis’ (Scoones, 1998).

2.5.3 Livelihood strategies

Livelihood strategies themselves must also be subject to analysis, and they often consist of combinations of activities which Scoones calls ‘livelihood portfolios’. A portfolio may be highly specialized and concentrate on one or a few activities, or it may be quite diverse, so unravelling the factors behind a strategy combination is important. Moreover, different ‘livelihood pathways’ may be pursued over seasons and between years as well as over longer periods, such as between generations, and will depend on variations in options, the stage at which the household is in its domestic cycle, or on more fundamental changes in local and external conditions. An historical approach is thus central to the analysis.

Based on these narratives, I argue that livelihood strategies frequently vary between individuals and households, depending on differences in asset ownership, income levels, gender, age, caste, and social or political status. A socially differentiated analytical approach to livelihood strategies is thus necessary.

2.6 Conclusion

This chapter has critically reviewed the conceptual underpinning which this research draws on, setting the stage for detailed empirical discussions in Chapters Five, Six and Seven. Changing dynamics within the ASM sector indicates it is far more an important contributor to local economic growth and poverty alleviation than the recognition it receives.

Although the sector is generally considered to be part of the informal economy in most rural areas of the developing world, it is an important and viable source of livelihood to the miners, their families and others involved in the supply chain. Whilst making significant contributions to the people's quality of life, there are long-term livelihood implications for some of these ASM communities as land is the most important capital from which they construct their livelihoods.

Property rights are weak and in some cases land could be expropriated without compensation. The remote location of ASM activities makes regulating the sector either expensive or impossible. The presence of minerals in remote areas is particularly attractive to terrorist, extremist and secessionist groups as these are typically ungovernable spaces. This illuminates how resources are conceptualised in Cameroon, which raises serious questions for policy makers and research. It is against this background that the proposed research aim to broaden our understanding of the ASM sector in Cameroon by:

1. Providing an in-depth analysis of the ASM sector in East Cameroon, illuminating major parallels with ASM activities in other sub-Saharan countries; and

2. Generating baseline data on ASM in Cameroon to inform policy and support schemes in the sector.

The empirical evidence to strengthen these claims is discussed in the remaining chapters of this thesis.

3 Chapter Three – Background and Context to the ASM Sector in Cameroon and the East Region

3.1 Introduction

This chapter establishes the context of my research by contextualising Cameroon and its East Region, providing some specific focus on the mining sector. I start by giving a brief introduction to Cameroon, and then examine the development of the ASM sector in the country, highlighting existing regulatory and policy issues that govern the ASM sector. Some basic ASM features that are of relevance to my field research are provided. The national, regional and local administrative settings of the country are introduced in this chapter to establish a link between power structures / relationships and resource management in a complex multi ethnic environment. I then present an overview of the East Region, mirroring the developmental related challenges through knowledges, resources and legal regimes, and concluding with a profile of my research locations.

3.2 Introduction to Cameroon

As shown in Chapter One, Cameroon is situated by the Gulf of Guinea on the West African coast, with a surface area is 475,000 square kilometres. Nigeria lies to the west, Chad and the Central African Republic to the east, and the Republic of Congo, Equatorial Guinea and Gabon to the south. The territory of present day Cameroon was first settled during the Neolithic era. The longest continuous inhabitants are groups such as the *Baka* (*Pygmies*). From here, *Bantu* migrations into Eastern, Southern, and Central Africa are believed to have originated about 2,000 years ago (Ngoh, 1996). The Sao culture arose around Lake Chad in AD 500 and gave way to the *Kanem* and its successor state, the *Bornu* empire. Kingdoms, *Fondoms* (a common title used to address *Bantu* traditional rulers in the West and North West Regions in Cameroon), and chiefdoms arose in the West, forming an assemblage of *semi-Bantu* and *Bantu* sub-ethnic groups. The name of the country derives from the term used for the *Wouri* River by Portuguese explorers. Reaching the Cameroon coast near the modern port city of Douala around 1472, those explorers named the river *Rio dos Camaroes* ("River of Prawns") after the variety of

crayfish they found there. This name later was applied to the coastal area between Mount Cameroon and Rio Muni (Nghoh, 1996).

3.3 Governance

Cameroon is a parliamentary republic with three levels of government – central, regional and local. Constitutional provision is made not only for local government but also for an intermediary higher territorial tier. The main laws governing local government are Laws No. 17, 18 and 19 of 2004 on decentralisation, councils and regions respectively. For the purpose of this study, only central and local governments will be discussed as these are the two levels of government that have powers to generate income through taxation. Additionally, the president (who heads the central government) and mayors (who head local councils) are the only elected administrative officials in Cameroon.

The Ministry of Territorial Administration and Decentralisation (MINATD) is responsible for government policy on territorial administration and local government. There are 376 local government councils, consisting of 320 urban or rural councils, 14 cities and 42 sub-divisions within the cities (Cameron National Office of Statistics, 2005). Local councils are empowered to levy taxes and charges including direct council taxes, cattle tax and business licences. All councils have similar responsibilities and powers for service delivery with the exception of the sub-divisional urban councils which have a modified set of powers. Council responsibility for service delivery includes utilities, town planning, health, social services and primary education.

A fundamental flaw in law governing the two tier system of governance is that it fails to take cognisance of the variation in capabilities and competence of central and local governments. This is mirrored in the absence of the relevant administrative structures necessary to regulate and support the ASM sector in remote parts of the country such as the East Region, as discussed in Chapter Six, Section 6.3.4. There is also no synergy between MINATD and other government departments. In the following sub-sections, I examine the relevance of both central and local governments to the ASM sector in the East Region.

3.3.1 Central government

Cameroon is a unitary republic with a bicameral parliament. The *de jure* head of state is the president, who is directly elected by universal adult suffrage for an unlimited number of seven- year terms. The parliament is called the National Assembly. Elected every five years on a direct universal suffrage basis, it has 180 members and sits three times a year, for a maximum period of 30 days per sitting. An upper chamber, the Senate, comprises of one hundred senators – ten from each region, of which seven are elected by indirect universal suffrage and three appointed by the president, all for a five-year term. The president appoints the nominal head of government, the prime minister. The head of government in turn appoints ministers, who head each government department.

Statutory instruments such as the Mining Code and Land Ordinance that govern the LSM and ASM sectors are developed by ministerial departments for approval by presidential decree. Each decree is embedded with texts of implementation at the local government level. However, empirical evidence (discussed under Chapter Five, Section 5.6) suggest the absence of synergy between central and local governments, leading to poor understanding of the requirements of such statutory instruments at the grass root level. Additionally, there are five ministerial departments involved in the extractive sector: Territorial Administration, Lands, Environment, Mines and Small and Medium-Sized Enterprises. These departments function independent of each other without any synergy between them. As discussed in Chapter Six, such dichotomy between the different state functions in the extractive sector has resulted in disorderly allocation of agricultural, mining, logging and oil/gas claims with wider long-term implications for the poor, weak and marginalised – the rural masses.

3.3.2 Local government

Section 55 (2) of the constitution states that regional and local authorities shall have administrative and financial autonomy and shall be freely administered by elected councils. The Main legislative texts pertaining to local government are shown in Table 3.1.

3.3.3 Structure of local government

Cameroon is divided into ten administrative provinces which have been renamed regions. The regions are in turn divided into divisions, which are further divided into sub-divisions and districts which correspond to the 376 local government councils. Constitutional amendments in 2008 made provision for an intermediary regional level of local government, but this has not been implemented. The Ministry of Territorial Administration and Decentralisation (MINATD) is responsible for the preparation, implementation and assessment of Government policy on territorial administration. This includes the regulations pertaining to the organisation and functioning of regional and local authorities; exercising supervisory powers over regional and local authorities; and overseeing regular evaluation of the roll-out of decentralisation.

The context of local authorities in Cameroon has been detailed *“Functional autonomy and the performance of communes in Cameroon: local government for local people?”* (Abangma, 2009). He identifies three main types of local authorities or councils in Cameroon: (i) rural or urban councils, (ii) city councils, and (iii) sub-divisional urban councils within the cities.

Councils can be either rural or urban, but all lack the special status granted to city councils and their sub-divisions. All councils are headed by a directly elected mayor who is supported by a team of councillors; their number depends on the population of the council’s constituency. The council can appoint commissions to work and report upon any relevant issue. Membership of a commission can include people who are not elected councillors.

Table 3.1. Main legislative text and statutes relating to local government in Cameroon

Regulatory statute	Brief description	Relevant to current research
Law No. 2004/017 on decentralisation	Devolution of power over certain decisions to local / regional authorities	This includes the licensing of ASM operations
Law No. 2004/018 on councils	Sets out the duties of local councils and how they are funded.	Each council is entitled to 10% of the proceeds of minerals purchased from each council area
Law No. 2004/019 on regions	This law set provisions for the creation of regions, previously called provinces.	Change from East Province to East Region, but no impacts on administration
Law No. 1987/015: sets up city councils	Relates to the creation of city councils	No relevance to current research.
Decree 1987/1365: sets up city council of Yaoundé	Law setting up Yaoundé city council with special status as the capital city.	No relevance to the current research
Decree 1987/1366: sets up city council of Douala	Law setting up Douala city council with special status as the economic capital of Cameroon.	No relevance to the current study
Law No. 1992/002: conduct of local elections	Law setting out guidelines for local council elections.	Local council representatives are part of the land consultation board, and have a role in both the allocation of mining concessions and demarcation of land for ASM
Decree 1993/321: sets up urban and rural councils	Decree relates to the creation and functioning of rural and urban councils.	Each rural council is entitled to 10% of the proceeds of minerals purchased from each council area
Decree 1995/80: specifies number of councillors to be elected per council	Law setting out guidelines for proportional representation in each council area.	Not relevant to the current study.
Law No. 1996/06: local elections and framework for regional decentralisation	Law setting out guidelines for local elections and devolution of power to regional authorities.	Regional authorities responsible for ASM licensing.

Commissions must be convened during the first year of a council's mandate. Typically, their remit would include planning, public works, education, markets and other facilities, or health.

3.3.3.1 City councils service urban areas

Their territory overarches that of sub-divisional councils and they are headed by government delegates appointed by presidential decree; they mirror all the duties and powers of mayors. They are assisted by an executive team composed of persons appointed by order of the president. The deliberative body of the city council is made up of the executive team: the sub-divisional council mayors and one additional councillor designated by each of the sub-divisional councils.

Sub-divisional councils are council areas created within any city council area. Most city councils have two or three sub-divisional council areas, with the exception of Yaoundé and Douala which have seven and six respectively. The sub-divisional councils are headed by directly elected mayors.

3.3.3.2 Government delegates and powers

In some larger towns, due to local political complexities or strategic administrative considerations, executive power is vested in a government delegate appointed by the president. The rationale for an independent government appointee is to guarantee civic rights, particularly in urban communities divided between minority native inhabitants and majority non-natives; however special status can be granted to councils for other reasons – for example difficulty in the delivery of basic services, such as water. In reality, this is seldom implemented. Although the decentralisation legislation has abolished special status councils and the legal distinction between rural and urban councils, many special status urban councils continue to be administered by presidential appointees. These government delegates work with the council chairperson, who is indirectly elected from amongst the councillors. Ordinary councils can be converted to special status by presidential decree.

3.3.4 Community involvement

There is no legal requirement for community involvement in local authority decision-making, or for their participation in non-farm economic activities within their municipalities. Any citizen can suggest policy alterations or improvements to local or regional authorities. Any inhabitant of a given council can, at their own cost, request copies of minutes, discussion notes, budgetary documentation and accounts of the said council. Historically, political parties and/or traditional leaders have communicated the needs of minority and special interest groups.

3.3.5 Organisation of local government

National local government association: The United Councils and Cities of Cameroon is an association that was formed from the merger of the Cameroon Association of Towns

and the Cameroon Union of Towns and Councils. The association provides members with information, capacity building, training, and good practice dissemination, and also provides financial services. Other local government associations: The Public Body for International Cooperation has also been set up to coordinate councils at divisional level and builds links with local authorities overseas. Councils are permitted, and increasingly encouraged, to seek decentralised cooperation ties with local governments abroad, especially in Europe.

3.3.6 Intergovernmental relations

The United Councils and Cities of Cameroon acts in an advisory capacity to the national government on matters affecting local authorities. In situations where approval for action is required from central government, senior divisional officers and regional governors must acknowledge and respond to a council decision within 15 days (Abangma, 2009).

3.3.7 Monitoring systems

There are a number of central government bodies which monitor the finances of local authorities. These include the audit unit of MINATD, the Directorates General of Treasury and Budget, and the Higher State Control. The National Election Office (NEO) is a national body which supervises the election process. Its members are appointed by presidential decree after consultations with political parties and civil society; although no elected official, political party member, traditional ruler or member of the forces of law and order is eligible for appointment as member. The NEO has regional and council representatives, and at council level the preparation and conduct of elections is overseen by council supervisory commissions. A National Council for Decentralisation and an Inter-ministerial Committee on Local Services were set up following the 2004 legislation. Legislation passed in 2003 provides for an Audit Bench under the Supreme Court to enforce proper standards in the collection and use of council taxes and accounting procedures. Decree 2004/099 provides for a Control Brigade to monitor the functioning and management of local and regional authorities.

3.3.8 Finance, staffing and resources

Local authorities cannot set deficit budgets. They are empowered to levy taxes and charges including direct council taxes, cattle tax and licences, market trading licences, ground rents on shops and public transport licences. They can also charge a business levy, which is an annual licence payment calculated on a sliding scale according to the nature and size of an individual's economic activity, with a maximum assessment of CFA100,000 (US\$211). While this provides some form of guidance to local authorities, it is difficult, if not impossible to measure.

Local authorities receive block grant revenue from central government through MINATD via its Special Council Support Fund for Mutual Assistance (FEICOM) based in Yaoundé with ten regional branches. These grants are weighted according to a council's population, surface area and other considerations. FEICOM also authorises loans for revenue and capital spending. FEICOM's priorities, in line with other similar organisations in Africa, centre on capital projects of social value, including schools, utilities, healthcare and transport infrastructure. Loans are for a maximum of two years. The proportion of loan to grant depends on the type of project being funded.

Top priorities for FEICOM's own resources include utilities and urban development. Funding is also available for the training of council staff. FEICOM also provides councils with non- financial support, including expert technical assistance, project evaluation, and other facilities. This is a vital role, given the lack of technical competence in many communal structures. FEICOM's key revenue role is the centralised collection and redistribution of the additional council tax (CAC). CAC is a 10% levy on certain categories of national taxation specifically destined for council finance. Taxes levied through this means include general income tax, business tax, entertainment tax, and value-added tax. CAC revenue is collected and allocated as follows: 10% to central government, 20% to FEICOM and 70% to councils. Of the total that goes to councils, 20% goes to Douala; 40% to Yaoundé and 36% to other councils. The remaining 4% is retained by FEICOM and used for a range of purposes, for example to compensate councils for revenue that is paid beyond their borders, to support infrastructure projects in border councils or to

help councils affected by natural disasters. 40% of forestry royalties are also redistributed to councils on a per capita basis (Abangma, 2009). The fragmented nature of revenue appropriation and the widely varying circumstances of individual councils have led to considerable inequalities in resources.

3.4 Economy

The country has modest oil resources and natural conditions favourable to agricultural production, ranking it amongst the best-endowed primary commodity economies in sub-Saharan Africa (CIA, 2013). Still, it faces many of the serious problems facing other underdeveloped countries, such as stagnating per capita income, a relatively inequitable distribution of income, a top-heavy civil service, and a generally unfavourable climate for business enterprise (African Economic Outlook, 2012). International oil and cocoa prices have a significant impact on the national economy. Since 1990, the government has embarked on IMF and World Bank-funded neo-liberal programmes designed to spur business investment, increase efficiency in agriculture, improve trade, and recapitalize the nation's banks. The IMF is pressing for more reforms, including increased budget transparency, privatisation, and poverty reduction programmes. An estimated 70% of the population are smallholder subsistence and cash crop farmers, with agriculture contributing an estimated 19.8% of GDP in 2009 (CIA, 2013).

According to the African Economic Outlook country report in 2012 agriculture, services and manufacturing accounted for over 50% of Cameroon's GDP in 2011 (see Table 3.2). Urban centres such as the capital city, major ports and regional headquarters depend on rural smallholder farmers for daily supplies of foodstuffs, vegetables, fruits, spices, nuts and honey.

Table 3.2: Cameroon's Gross Domestic Product (GDP) by Sector in 2011

Sector	Contribution to GDP (%)
Agriculture, forestry, fishing and hunting	23.4
Mining and quarrying	7.2
Manufacturing	16.2
Electricity, gas and water	1.0
Construction	5.5
Wholesale and retail trade, hotels and restaurants	19.4
Transportation and storage	7.0
Finance, real estate and business services	10.9
Government services	8.1
Other services	1.2
Total GDP	100

Source: Adapted from the African Economic Outlook country report, 2012.

Soils and climate on the coast encourage extensive commercial cultivation of banana, cocoa, oil palms, rubber and tea. Reliance on agricultural and food-related exports makes Cameroon vulnerable to shifts in their prices. Livestock is raised throughout the country. Fishing employs thousands of people and provides 20,000 tonnes of seafood each year (MoFAH, 2012). Bush meat, long a staple food for rural Cameroonians, is today a delicacy in the country's urban centres (See Figure 3.1). The commercial bush meat trade has now surpassed deforestation as the main threat to wildlife in Cameroon (DoF, 2012). The southern rainforest has vast timber reserves, estimated to cover 40% of Cameroon's total land area (DoF, 2012). Some areas of the forest are dense and impenetrable, impeding access and usage. Logging, largely handled by foreign-owned firms, provides the government US\$60 million a year (CIA, 2013), and laws mandate the safe and sustainable exploitation of timber. Nevertheless, the African Economic Outlook report on Cameroon in 2012 assesses the industry as largely unregulated. According to the report, Cameroon has vast natural resources and highly diverse ecosystems; has signed a number of international conventions including the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change; yet its biodiversity and biological resources are suffering from significant pressures that have led to a deterioration of its forests, a 0.9% annual deforestation rate and a steady reduction of arable land per inhabitant. The report gives Cameroon a 44.6 rating for environmental performance; diminution of forest cover running at around 1% per year, and 11% of all species are under threat which resonates with lack of regulation in the sector.

Figure 3.1: Foodstuff and bush meat trade in Batouri and Bertoua



Foodstuff market in Batouri. Cassava and plantains, which are a key component of the local diet, are visible in the image



Bush meat trade in Bertoua. Due to the location, bush meat is a major part of the local diet in this part of Cameroon

Source: Author's fieldwork 2012/13

Factory-based industry in Cameroon lacks incentive and accounted for an estimated 29.7% of GDP in 2009 (African Economic Outlook, 2012). This, together with the service sector, lags behind other sub-Saharan African countries because of the country's low "to do business" index (Schwartz *et al.*, 2012). This together with other poor facilities and infrastructure makes the economic capital upon which people can construct their livelihoods unreliable.

3.5 Geology and mining opportunities

Little is known about the geology of most formations in the country, hence the potential of the country as a mining hub can neither be substantiated nor evaluated. Artisanal workings of gold, diamonds and other precious minerals are an indicator of the mineral wealth of the nation, and have recently attracted interest from several multinational mining companies. The country aspires to become a middle income country by 2035, and sees the mining sector as one of the cornerstones of this transformation. The 2001 mining code opened up opportunities to foreign direct investment in the sector. Allocation of mineral concessions since then has been deemed as disorderly and devoid of the bottom-up consultation process. Schwartz *et al.* (2012) argue that the current allocation of mining concessions in protected areas translates to Cameroon's failure to

meet its commitment to international environmental, biodiversity and conservation agreements e.g. the Bani gold mining permit held by Bocom Petroleum SA overlaps the Bouba Ndjida protected area which was created through an international agreement. Similarly, Ventures Capital's Bengbis concession overlaps the Dja reserve which is a UNESCO World Heritage site (Schwartz *et al.*, 2012).

Overlapping land uses are a proverbial time bomb waiting to explode when mining companies make the transition from exploration to production and start protecting their claims (Schwartz *et al.*, 2012). In resource rent-dependent countries, the rights to high-value natural resources are often allocated to foreign multinational companies for large scale operations, while *de facto* land rights are retained for traditional and cultural purposes. As a consequence, one institution may legally hold the rights to the land while other entities hold the rights to the natural resources on or under the same parcel of land. As governments in such resource-rich nations encourage foreign direct investments in their natural resources to alleviate poverty and promote economic development, instances of overlapping land and natural resource rights have become more common. Such overlapping rights are also a growing source of conflict as the various holders pursue different, sometimes incompatible land use practices to exercise their rights (Peter and Larsen, 2013). In Peru, studies carried out by the Centre for International Forestry Research (CIFOR) in 2013 suggest that overlapping agriculture, mining and timber concessions threaten rural livelihoods dependent on Brazil nut harvesting in the Madre de Dios region of the country. The study concludes that a lack of coordination and verification of pre-existing claims by government agencies responsible for granting land-use rights have led to a situation where Brazil nut concessions overlap with 47,000 hectares of mining, 34,000 hectares of farming, and 1.3 million hectares of timber concessions (CIFOR, 2013).

In sub-Saharan African countries such as Liberia, Sierra Leone, Angola and the Democratic Republic of the Congo, the allocation of mineral concessions to foreign multinational corporations and large-scale mining operators have fuelled conflict with other land-uses. Property rights struggles are often at the core of these conflicts. Fierce and sometimes violent contestation over the control of and access to mining sites has

long characterized the resource tenure issues, and quite so where rural livelihoods such as farming or artisanal and small-scale mining overlap large scale mining concessions. For instance, in Tanzania, Lugoe (2012) illuminates the problem of overlapping claims between mining companies, government departments and local communities, where outdated topographic base maps seldom delineate community, conservation, mining and other land resources boundaries. In the 1998 Mining Act of Tanzania, there is provision for security of tenure to investors; a smooth progression from prospecting to mining rights; and streamlining procedures for obtaining mining licences through a mineral titles register makes prospecting and mining rights exclusive to mining permit holders. As a consequence, Lugoe (2012) asserts that mining concessions created after 1998 overlap other land uses community land, farmland and grazing land inadvertently leading to land disputes and land use conflict on a wide scale. Through strengthening tenure security and clarifying property rights at various stages of the mining process, these resource conflicts can be reduced significantly while also providing incentives for mitigating environmental impacts of this largely informal sector.

Whilst evidence of overlapping land claims poses questions on the security of tenure of ASM operations in East Cameroon, the players in the sector, especially those in the most remote parts of the country, are thriving undisturbed. This livelihood dates back to the pre-colonial era. According to Lang (2007), ASM of gold may have started in the East Region, and perhaps other parts of country around 1933, with production of about 20 tonnes between 1934 and 1984, giving an average annual production of 300 kg worth some two billion CFA Francs annually. In the East Region, earlier estimates by Sale (2003) suggest that some 10,000 ASM workers could be producing about 100 kg of gold per month, most of which is channelled through informal circuits. Official figures by the department of Mines and Geological Research are much lower, with estimates 500 and 700kg produced annually by artisanal miners (Lang, 2007). Whilst data availability and reliability issues continue to generis issues of ASM, anecdotal evidence suggests the ASM gold sector is increasingly becoming the main driver of local economic growth in East Region.

3.6 Soils and agricultural potential

Soils in Cameroon vary from place to place depending on the bedrock, climate and topography. The combination of bedrock geology and climate strongly affects soil structure and fertility, and consequently influences local populations depending on the productivity of these soils for agriculture. The soils in the south and south-central regions have developed on basement rocks and are affected by high precipitation, resulting in deep weathering and extensive leaching. They are red, ferralitic, permeable and low in plant nutrients, but are physically very stable (Yerima and Ranst, 2005). Volcanic soils in the western regions of Cameroon along the Cameroon Volcanic Line, which also experience high precipitation, are very fertile. In many parts of the East Region, soil has developed on granitoid basement rocks and weathering is very deep, with a regolith that is more than 30 m thick (Asaah, 2010). The soil is a ferralitic, red and highly leached. A very hard protective cuirass has formed over the soil and, in some places (e.g. Dimako, Kette and Beke), it hinders artisanal mining activities. Despite these features, the soils in the region support a wide range of agricultural products ranging from fruits, vegetables, maize, groundnut, cassava, yam and plantain. However, poor infrastructure in the region is a deterrent to large scale agricultural production.

3.7 Socio-cultural diversity

Cameroon has distinct regional cultural, religious, and political traditions as well as ethnic variety. The country's borders and basis modern infrastructure were established during the brief phase of German colonial rule (1884-1916) but the subsequent division of the country into British and French-ruled League of Nations mandates after World War I created two Anglophone and eight Francophone regions. The official language, educational system and legal practices in the English-speaking regions derive from those of the United Kingdom while the eight French-speaking regions derive their language, educational and legal systems from France.

This bilingual system is marked by a strong geopolitical identity for every citizen in the country where they are either 'Anglophone' or 'Francophone'. There is no official figure on the proportion of each language group due to lack of detailed demographic data.

However, estimates from each of the regions by the government suggest the Francophones make up about 82% of the total population of the country. They dominate economic activities and political power, fuelling tension between the two groups, which in the past, has nursed secessionist feeling amongst Anglophones. The government's response to this has been to continue to assimilate Anglophones, preferring to instil a sense of a common national culture through shared history, schooling, national holidays and symbols, and the enthusiasm for football. However, ethnic distinctiveness remains, and ethnic identity is an increasingly important source of social capital, which is more complicated than these two European language groupings might suggest (KPMG, 2012).

3.8 Population

The population distribution in the country by region is shown in Table 3.3 below. The 2010 estimate of Cameroon's population by the National Office of Statistics was about 19.5 million. The population is characterised as young, with an estimated 40.9% under 15, and 96.7% under 65. The average birth rate is estimated at 34.1 live births per 1,000 people, the death rate at 12.2. The National Office of Statistics and the World Bank estimate average life expectancy to be 53.69 years (52.89 years for males and 54.52 years for females). Cameroon's population is almost evenly divided between urban and rural dwellers. Population density is highest in the large urban centres, the western highlands, and the north-eastern plain. Douala, Yaoundé, Bamenda and Garoua are the largest cities (see Table 3.4). In contrast, the Adamawa Plateau, south-eastern Bénoué depression, and most of the South Cameroon Plateau are sparsely populated. Smaller movements are occurring as workers seek employment in lumber mills and plantations in the south and east. Although the national sex ratio is relatively even, these out-migrants are primarily males, which lead to unbalanced ratios in some regions (UN, 2004).

Table 3.3. Population Statistics and Administrative Units of Cameroon

Region	Administrative capital	Surface area (km ²) and relative proportions		Population (2010 est) and relative proportions	
		Surface area	Percentage	Population	Percentage
Adamawa	Ngaoundere	63,701	13.67	1,015,622	5.23
Centre	Yaoundé	68,953	14.80	3,525,664	18.17
East	Bertoua	109,002	23.39	801,968	4.13
Far North	Maroua	34,263	7.35	3,480,414	17.93
Littoral	Douala	20,248	4.34	2,865,795	14.77
North	Garoua	66,090	14.18	2,050,229	10.56
North West	Bamenda	17,300	3.71	1,804,695	9.30
West	Bafoussam	13,892	2.98	1,785,285	9.20
South	Ebolowa	47,191	10.13	692,142	3.57
South West	Buea	25,410	5.45	1,384,286	7.13
	Total	466,050	100	19,406,100	100

Source: National Office of Statistics, Cameroon (2010)

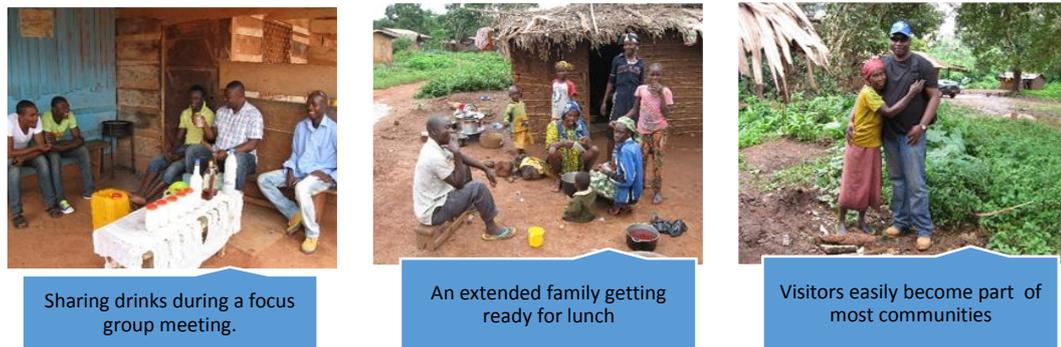
Table 3.4. Population of the 10 largest cities in Cameroon

City	Population (2010 est)
Douala	1,907,479
Yaoundé	1,817,524
Bamenda	269,530
Bafoussam	239,287
Garoua	235,996
Maroua	201,371
Ngaoundere	152,698
Kumba	144,268
Nkongsamba	104,050
Buea	90,088

Source: National Institute of Statistics, Cameroon (2010)

Both monogamous and polygamous marriages are practised, and the average Cameroonian family is large and extended. The sharing of cooked food is one of the major ways to cement social relationships and express the high value placed on human company. Sharing food and drink (Figure 3.2) demonstrates hospitality and trust. Social support networks among kin and friends, particularly between rural dwellers and their urban relatives, are held together symbolically with gifts of cooked and uncooked food. Sacks of beans, maize, or peanuts "from home" can be seen on the roofs of bush taxis travelling between the countryside and urban centres.

Figure 3.2. Sharing of drinks and social support network in Kambele II



Source: Author's fieldwork, 2013

In the north, women tend to the home, and men herd cattle or work as farmers. In the south, women grow the family's food, and men provide meat and grow cash crops. Cameroonian society is male-dominated, and violence and discrimination against women is widely reported in the literature (e.g. Johnson *et al.*, 2007; Lorber, 2006). The United Nations refer to domestic violence as any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life (UN, 1993).

Accordingly, violence against women encompasses but is not limited to the following: physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry-related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation; physical, sexual and psychological violence occurring within the general community, including rape, sexual abuse, sexual harassment and intimidation at work, in educational institutions and elsewhere, trafficking in women and forced prostitution; and physical, sexual and psychological violence perpetrated or condoned by the State, wherever it occurs. Further, Amnesty International (2004) adds that because the human rights situation across Africa is characterized by widespread armed conflict, political repression, poverty and social inequality, persecution of human rights defenders, and violence against women, women

in Africa are at risk of violence whatever their circumstance (Amnesty International, 2004). Considering the fact that ASM operations take place in areas often framed as 'ungoverned' geographical spaces, violence and discrimination against women constitute a key feature that continues to blight this important non-farm sector.

Estimates identify anywhere from 230 to 282 different linguistic groups in Cameroon. The Adamawa Plateau broadly bisects these into northern and southern divisions. The Northern peoples are Sudanese groups, who live in the Central highlands and the Northern lowlands, and the Fulani, who are spread throughout Northern Cameroon. A small number of *Shuwa Arabs* live near Lake Chad. Southern Cameroon is inhabited by speakers of *Bantu* and *semi-Bantu* languages. *Bantu*-speaking groups inhabit the coastal and equatorial zones, while speakers of *semi-Bantu* languages live in the Western grass fields.

3.9 Land rights in Cameroon

Land in Cameroon is governed by a set of laws collectively referred to as the Land Ordinances (Anyangwe, 1984). These include: Ordinance No. 74/1 of 6 July 1974 to establish rules governing land tenure; Ordinance No. 74/2 of 6 July 1974 to establish rules governing State Lands; and Ordinance No. 74/3 of 6 July 1974 concerning the procedure governing expropriation. Since their enactment, the various shortcomings of the Land Ordinances have been highlighted in numerous articles (e.g. Nsoh, 2013; Anyangwe, 1984).

The law illustrates the widespread inconsistencies in government decision-making, and, coupled with other practical difficulties such as a dysfunctional judiciary; it places serious limits on property rights. The common feature here is the division of land into three broad categories, private property, public property and national lands. Private property now covers only land for which a land certificate has been issued while public property consists of all personal and real property which, by their very nature (e.g. coastlands; waterways; sub-soil and air space) or intended purpose (e.g. easements), is set aside either for the direct use of the public or for public services (GoC, 1974). Land that has not been registered as private or public property reverts to the common pool

of national lands and this includes land still held by virtue of a customary tenure under the control of village chiefs and community leaders. Legality of the Customary Interest in Land such as ASM is shrouded with a lot of ambiguity. To define national lands, Articles 14 and 15 of Ordinance No. 74/1 state that:

Article 14(1) National lands shall as of right comprise lands which at the date on which the present Ordinance enters into force, are not classed into the private or public property of the State and other public bodies.

Article 14(2) National lands shall not include lands covered by a private property right as defined in Article 2 above.

Article 15 National lands shall be divided into two categories: (1) Lands occupied with houses, farms and plantations and grazing lands, manifesting human presence and development; (2) Lands free of any effective occupation.

This means that occupied and unoccupied lands that are not registered are included in the category of national lands. The effect of this all-embracing notion of “national lands” is that the vast majority of Cameroonians who held land under customary law without any State recognised document of title found their lands absorbed into national lands. Nsoh (2013) and earlier scholars such as Ngwasiri (1984) argue that this is sufficient to divest all customary rights holders of their customary ownership rights, but not necessarily other rights (such as the rights to harvest timber products from such lands) (Nsoh, 2013; Ngwasiri, 1984). However, the vast majority of the citizens continue to occupy and use land as though customary ownership rights still exist.

Article 17 of Ordinance No. 74/1 gives customary communities and individuals the right to continuous occupation or use of lands that they had been peacefully occupying or using prior to the entry into force of the Ordinance. It also gives them the right to convert such interest into a land certificate. But a land certificate is not required to guarantee the right to peaceful occupation and use by customary communities and individuals. Nevertheless, in order to succeed with any application, the customary communities and individuals have to prove that they were in effective occupation or effectively exploiting the lands (including any mining claims and forest lands) by 5th August 1974 (Fisiy, 1992). For some communities such as the *Baka Pygmies* in the East Region, even if they could afford the cost of applying for a land certificate, proving that they have been in effective

occupation or effectively exploiting the forest (land) is very difficult due to their traditional hunter-gatherer lifestyles and lack of documentary evidence.

The situation is even more complicated for individuals and customary communities on land classified as 'unoccupied', where the only rights available to them are hunting and fruit picking which may also be limited if the land is assigned for different purposes (GoC, 1974; Nsoh, 2013). For such lands, no land certificate can be issued even if occupation or use was claimed by these individuals or customary communities. It has, however, been held that where land is in possession of another, no land certificate can validly be issued in respect of that land without first revoking the right of the original occupier (Njoh, 1998). In cases where those lands are possessed by customary communities and individuals, the only possible source of such rights would be customary title.

The implication of the above argument is that customary owners are still holding land under the customary land tenure system (Anyangwe, 1984). This is significant because, although a land certificate is what now confers ownership, it has also been held that this is not the only possible proof of ownership. In other words, even if it could be argued that a land certificate is the only objective proof of ownership, or perhaps state-sanctioned documentation, it is not the only basis of ownership since customary holding is one way of acquiring a certificate, implying that customary ownership rights are still recognised (Nsoh, 2013). The continuous occupation or use of land, which has been absorbed into the category of national land, grants customary communities and individuals a legal right to own the land. It is therefore fair to say that this right should be recognised in all legislation dealing with land ownership regardless of whether or not a land certificate exists. This dual tenurial system is incompatible with resource extraction activities such as mining, as shown in Table 3.5, where investors would seek to defend their claims (allocated from government lands) on one hand while ASM communities continue to exercise their de facto rights.

Table 3.5: Summary of statutes governing land rights in Cameroon

Statutes	Brief Description	Relevance to ASM activities and the current research
Ordinance No. 74-1 of 6 July 1974	To establish rules governing land tenure.	Most land on which ASM takes place is common pool which is recognized in this statute
Law No. 19 of 26 November 1983	To amend the provision of Article 5 of Ordinance No. 74-1. Land registration law (private property law).	Land registration is the only proof of ownership. Unregistered land is subject to expropriation
Law No. 76/25 of 14 December 1976	To establish regulations governing Cadastral Surveys and Records.	Different user rights on a single piece of land are common as shown in Chapter Six
Decree No. 76-165 of 27 April 1976	To establish the Conditions for obtaining land certificates	Such conditions can either encourage or deter registration.
Decree No. 2005-481 of 16 December 2005	To amend and supplement some provisions of decree 76-165 national/state lands law.	Lad in most rural parts of the country, including those on which ASM takes place are national lands
Decree No. 76-166 of 27 April 1976	To establish the terms and conditions of management of national lands.	Local communities can manage state lands, subject to these terms and conditions
Decree No. 84-311 of 22 May 1984	To lay down the conditions for Implementing Law No. 80-22 of 14 July 1980 land acquisition for public purpose.	This decree subjects all untitled lands to expropriation
Law No. 85-09 of 4 July 1985	To lay down the procedure governing expropriation for public purposes and the conditions for compensation.	This applies to land used for ASM
Decree No. 87-1872 of 16 December 1987	To Implement Law No. 85-9 of 4 July 1985	This applies to land used for ASM
Instruction No. 005/1/Y.25/MINDAF/D220 of 29 December 2005	To recall the basic rules about the implementation of the system of expropriation for a public purpose natural resource tenure.	This applies to both private and community land where resources have been discovered.
Framework Law No. 96/12 of 5 August 1996	Relating to Environmental Management	This law spells out the environmental safeguards that ASM operators should undertake.
Law No. 2001-1 of 16 April 2001	To establish the Mining Code	Defines scope and registration process of ASM
Law No. 2002/003 of 19 April 2002	On the General Tax Code	Spells out the revenue sharing formula of mineral income
Law No. 2002-13 of 30 December 2002	To institute the Gas Code	Not directly applicable to ASM

Source: Adapted from GoC Statute repository

The legal and political origin of land tenure in Cameroon is enshrined in the persistent retention of the inherited colonial tenurial system. Under colonialism, it was convenient for the purposes of mass resource capture to deny that Africans owned the land that they and their ancestors had controlled, lived upon and used (Alden, 2011; Alden Wily, 2008).

Land was generally declared to be the dominion of the State, and traditional owners held in law to be no more than permissive occupants and users. Virtually all of Sub-Saharan Africa including Cameroon was affected. From the outset, possession of naturally collective properties like forests and rangelands were most at risk, as not visibly cultivated or settled (Alden, 2011).

However, even where land was found to be actively occupied and used, the greater interest of the State (in effect, government) prevailed. Over time this dispossessory power was reinforced by the land-grabbing interests of emerging African economic and political elites (GRAIN, 2008; Von Braun and Meinzen-Dick, 2009). For similar reasons, most independent governments sustained the colonial norms, in practice cementing the state's role as landlord. At the same time, national law extended opportunities for individuals to convert their customary interest into the private property system originally introduced to serve white settlers. UN and especially World Bank guidance reassured governments in the 1960s and 1970s that they were on the right track; modernisation could only be achieved by doing away with what they saw as the unsatisfactory communal foundation of African land-holding. Proprietorship by individuals on the one hand, and the commoditisation of land on the other, were necessary to kick-start commercial agriculture and to provide the landless labour needed for industrial growth.

In Cameroon's case, the Ahidjo government went a step further. It took the opportunity in its land laws of 1974 to do away with the opportunities which colonial land laws had provided for rural communities to have their domains recorded, affording some degree of protection. Such provisions had crept into legislation around the continent (often in the form of native reserves) as the purposes of colonialism changed to be more African

production focused and as the denial of native land rights became a subject of public scrutiny in home countries (Nguiffo *et al.*, 2009).

3.10 The mining sector of Cameroon

Prior to and after independence in 1960, Cameroon's political and economic foundations have been overwhelmingly agrarian. In the two decades following independence, the government initially concentrated on the expansion of educational facilities, diversification of farm production, selective industrialization, rural development and the introduction of rural cooperatives. Favourable economic conditions over the years have projected the country to one of the best-endowed primary commodity economies in sub-Saharan Africa (CIA, 2013), yet it faces many of the serious problems confronting other underdeveloped countries, such as stagnant per capita income, a relatively inequitable distribution of income, a top-heavy civil service, endemic corruption, and a generally unfavourable climate for business enterprise.

The legal framework for Cameroon's mining sector follows French law. The Mining Code consists of a law (1964) which regulates mineral substances, and another law (1978) which defines taxes, including royalties and mining taxes. The latter was supposed to define the fiscal framework for mining, but this did not happen until 2001 when the new Mining Code (Law No. 1 of April 2001) was promulgated with the assistance of the World Bank. It comprises the fiscal laws necessary for the regulation of the sector with provisions for investors to negotiate on a case-by-case basis for the establishment of mining companies. According to the code, all mineral resources belong to the state. Prospecting, exploration and mining activities for any mineral deposit are regulated by permits, which are awarded for quarrying, prospecting/ research, exploration, exploitation, and mining concessions (GoC, 2001). This legal framework has reduced administrative burdens and put the authorities in a better position to evaluate investment opportunities which often require rapid decisions (Ingram *et al.*, 2011). One perceived advantage of the new code is a reduction in the role of the state in mining operations as well as its discretionary powers. On the other hand, there is an increase in the state's role as a supervisor and regulator of the mining sector. The creation of the

Support and Promotion Framework of Mining Activities Organisation (CAPAM), in 2003, followed a new provision of the 2001 Mining Code enabling the setting up of an autonomous unit to facilitate, assist and promote small-scale mining and aid up-scaling of large-scale mining operations (Sale, 2003).

In 2006, CAPAM channelled 50 kg of gold and 300 carats of diamonds through its market facilitation structure. The revenues are being used to invest in materials, pay tax (3% for gold, 8% for diamonds) and 15% is given to the local council, 10% to local population and 25% to the monitoring and control organ (Ingram *et al.*, 2011). One of the advantages for the miners would be greater certainty about prices for their production with help of sales according to an approved price list. This approach appeared difficult to implement; miners were not well informed about the price list and still had no capacity to determine the diamonds' quality and value category. In 2008, the purchase of diamonds from artisanal miners by CAPAM was suspended by the authorities. This was due to inconsistent pricing and alleged exploitation of some miners by rogue CAPAM officials (pers. comm. 28/05/2013). The 2001 Mining Code of Cameroon differentiates between ASM and LSM but at the same time, gives provisions for the two to operate at the same site, recognising the importance of the livelihoods of local people and referring to the fact that the former goes to less profound depths than the latter. A related challenge recognised by provisions of the 2001 Mining Code is to mitigate problems caused by both ASM and LSM operations in the same area (Gweth, 2006). However, there have not been any practical tools developed to date to deal with the situation of ASM versus LSM.

Lack of detailed geological information means the mineral sector has, as in the past, suffered neglect due to poor infrastructure and a commercially unattractive 1964 mining code. However, the 2001 mining legislation, which offers mining companies a 5-year tax holiday and free transfer of capital out of the country, has proven to be an incentive for foreign investment, as Cameroon has become an attractive destination for a number of foreign and multinational mining companies such as Geovic, African Aura Resources and AngloGold Ashanti. This typifies the resource politics conundrum discussed in Chapter One (Section 1.4.2). These companies are currently targeting previously known deposits

of various mineral commodities including bauxite, iron ore, cobalt, nickel, uranium, manganese, rutile, gold, diamond, and industrial minerals (Newman, 2008).

Cameroon is hoping that its burgeoning mineral sector will attract investments worth US\$10 billion and create 27,000 jobs in the next few years (Newman, 2008; Kinnaird, 2008). However, the proliferation of mineral exploration and exploitation licensing throughout the country has occurred via a top-down neo-liberal approach, which is inconsistent with other land uses, with several cases of overlapping and conflicting land uses (Schwartz *et al.*, 2012). This approach to natural capital undermines the long established de facto resource rights, which has been enshrined in the customs and traditions of rural Cameroon for several generations. In several parts of the country, numerous artisanal mines are operated by thousands of rural dwellers as a livelihood of choice. It is not known what contribution this makes to the rural economies, as there no detailed census or socio-economic survey has taken place, a major knowledge gap this research aim to fill.

3.11 East Region of Cameroon – overview and development-related challenges

The East Region occupies the south-eastern portion of the Republic of Cameroon (see Figure 1.1 in Chapter 1). It is bordered to the east by the Central African Republic, to the south by Congo, to the north by the Adamawa Region, and to the west by the Centre and South Regions.

With 109,002 km² of territory, it is the largest region in the nation as well as the most sparsely populated historically, the peoples of the East have been settled in Cameroonian territory for longer than any other of the country's many ethnic groups, the first inhabitants being the *Baka Pygmies* (DeLancey and DeLancey, 2000). The East Region has very little industry, its main commerce consisting of logging, timber, and mining. Instead, the bulk of its inhabitants are subsistence farmers. The region is thus of little political importance and is often ignored by Cameroonian politicians. Coupled with the low level of development in the province, this has led to its being dubbed 'the forgotten province' by political pundits (Fitzpatrick, 2002). The East Region has 801,968

inhabitants. With an average density of six inhabitants/km², it remains the most sparsely populated of Cameroon's ten regions. The bulk of the territory has a population density of less than five inhabitants/km². This is mostly as a result of the area's thick forests, which inhibit settlement and support disease-carrying insects such as mosquitoes and blackflies. These factors also make the East an unattractive target for development by both non-governmental organisations and the Cameroonian government, a fact that has prevented larger numbers of people from settling in the region (West, 2004).

The majority of the population is thus primarily resident in villages and towns along the few major roads that traverse the region. Along these routes, population density rises to as high as 20/km² and to 20-60/km² on the Bertoua-Batouri corridor. The traditional Bantu dwelling is a rectangular house made of sun-dried bricks placed in a wooden frame. Raffia palm fronds are a common covering, though metal roofing has become more common.

The culture and customs of the East Region have been described as multi-cultural, ethnically diverse (Mbaku, 2005). Most East Region peoples are considered Bantu in origin. The second most numerous are the various Adamawa–Ubangi (Sudanese) tribes that inhabit much of the northern portions of the territory (Fanso, 1989; Ngoh, 1996). A third important group are the Fulbe (Fula), who have immigrated into the area in great numbers over the past few decades (Fanso, 1989). Finally, the pygmies comprise another significant population. Most eastern peoples speak their own distinctive languages, though educated individuals usually also speak French. Minor languages spoken include *Bomwali*, *Bulu*, *Kol*, *Mbonga*, and *Vute*. The people of the East are predominantly Christian, and Presbyterianism and Catholicism claim the most members. Animist beliefs are also followed by much of the population, often in conjunction with Christianity. The East also has a relatively high percentage of Muslims, particularly in the areas closer to the Adamawa Region (Mbaku, 2005).

The main cultures include the *Makaa–Njem* people who constitute the largest group of Bantu people in the region. The Maka form the majority of this group and occupy much of the western territories on the border with the Centre Region, including the towns of Abong-Mbang, Nguemendouka, and Doumé. The Bajwe inhabit the territory

immediately south of this, centred at Massaména (Fomensky *et al.*, 1985). The *Nzime* live at Mindourou and its surroundings on the road that runs south from Abong-Mbang. Further south on this road are the *Njem*, whose territory includes the settlements of Lomié, Zoulabot, Zwadiba, and Ngoila. The *Mpo* occupy most of the territory surrounding the Ndélélé-Yokadouma road and the side roads off of it, as well as much of the border with the Congo. The *Mpoman* have a small enclave at Lokomo south of Yokadouma, and the *Kunbabeeg* live west of this *Mpo-Mpoman* territory. All of these groups speak distinct, but closely related, languages. Though the capital, Bertoua, is a traditional *Gbaya* settlement, the region is today a metropolis of several tribes, including the *Baka*, *Pori*, *Bajem*, and *Kwa*. The South-Western portion of the Lom and Djerem Division, just west of this, is inhabited by the *Eki*, who have more extensive territories in the Centre Region. Small areas on the road from Doumé to Gongga belong to the *Kwakum* and *Pori*. The *Kako* live to the south and the west of the Kadey River and around Batouri and Ndélélé. The *Bageto* have lands south of Ndélélé (Gwanfogbe *et al.*, 1983).

The *Gbaya* are the most populous *Ubangi* group in the East, and they inhabit most of the Lom and Djerem division (including Bertoua) and the northernmost third of the Kadey Division along the Kadey River (Lantum and Monono, 2005). They also have smaller population centres, including the village of Gari-Gombo and Djampiel. The *Kuo* occupy the extreme north-eastern corner of the region, including Wendoka. The *Gbete* (*Keperé*) live northwest of Bertoua, including the territory from Bélabo west to Yangamo (Gwanfogbe *et al.*, 1983). The *Bangantu* people live east of the Yokadouma-Moloundou road in the region's south-eastern corner. The rest of the region, which is covered by thick forests and not linked by roads is inhabited by the *Baka*, *Babaya*, or *Babinga Pygmies*. Though traditionally hunter-gatherers, in recent times, the *Baka* have established trade with their *Bantu* neighbours, exchanging wild game for crops or metal tools.

Mbaku (2005) suggests that the vast majority of the inhabitants of the region are subsistence farmers. Major crops are plantain, maize and cassava (Figure 3.3). Farmers also raise many other crops in smaller quantities, including banana, groundnuts, cocoyam, pineapples, oranges, mangoes, and yams. The dense forest and presence of

the tsetse fly precludes much cattle raising, but various livestock are raised for subsistence purposes, including pigs, sheep, goats, ducks, and chicken, as well as horses and donkeys in the north-east of the region.

Figure 3.3. Food and vegetable market in Batouri



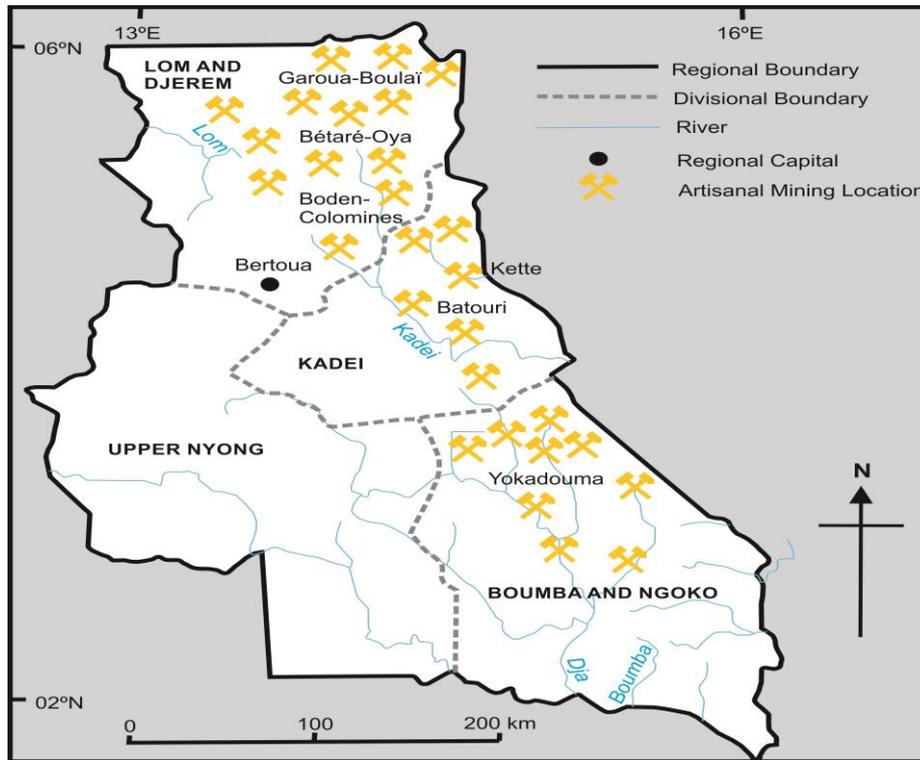
Source: Author's fieldwork, 2012

A national NGO, the Livestock Development Exploitation Organisation, also runs a modern cattle ranch at Ndokayo in the region's northeast. Farms are mostly small-scale affairs planted in clearings in the forest. Farmers clear an area during the dry season using traditional implements such as axes and machetes. The area is then burned, with care taken to preserve economically valuable fruit trees. At the start of the wet season, spices and common vegetables are planted close to settled areas, and tubers, such as cocoyam and cassava, are planted with plantains in larger plots further afield. Farmyard manure is used as fertiliser. Crops are then harvested at the beginning of the next dry season (Mbaku, 2005).

3.11.1 Profile of the research locations

Artisanal gold mining in the East region corresponds to the mineralised shear zone, which has been described by Asaah (2010) as 'gold districts'. Six gold districts (Betare-Oya, Batouri, Yokadouma, Boden-Colomine, Garoua-Boulai and Kette) with high concentrations of ASM populations have been selected for this research as shown in Figure 3.4 below.

Figure 3.4. Artisanal mining districts and research locations in the East Region



Source: Author's fieldwork, 2012/13

3.11.1.1 Boden-Colomine

The Boden–Colomine mining district is located 156 km north-east of Bertoua and 94 km to the north of Batouri by road. The area comprises several small gold mining sites at Boden and Colomine. The gold is mined from both eluvial and primary vein deposits. The remote nature of this district makes ASM the primary activity, involving almost every single adult in the district. There roads are seasonal and become impassable during the rainy season, thereby restricting access to food and cash crop markets by smallholder farmers.

3.11.1.2 Betare-Oya

The district of Betare-Oya is located at about 160 km from Bertoua, the main town of the East Region of Cameroon and is linked to Bertoua by a combination of asphalted and lateritic roads. Public amenities in the area include a hospital, elementary and secondary schools and various administrative offices. The total population of Betare-Oya is around

12,000 inhabitants and comprises essentially the native Baya ethnic group and some tribes from the other parts of Cameroon. Economic activities include artisanal gold mining, subsistence agriculture, cattle breeding, hunting and fishing. The town is supplied with power but there is no pipe-borne water. ASM is the principal activity in this area, with local authorities estimating that more than 90% of the total adult population could be involved in ASM on permanent or part-time basis (CAPAM, 2013). Gold is mined directly from primary placer deposits, with reports of high recovery rates. It is common that after classes or during weekends and holidays, some high school students join their parents in gold mining. The local chiefs assert that there is abundant land for agriculture, but people choose ASM because they were born into the activity and because of its high revenue potential (pers. comm. 08/04/2013).

3.11.1.3 Batouri

Batouri is the headquarters of the Kadey, one of the four administrative divisions of the East Region. It is the second largest municipality in the region, after Bertoua, the regional capital. Access from the capital city Yaoundé is by a 349-km-long road, consisting of both tarmac and lateritic roads. Batouri has been one of the main sites for artisanal gold mining in the country for more than 50 years. The gold occurs in shear zone lodes and associated wall-rock, along a 13 km-long mineralised corridor, which cross-cut granitoid rocks. Milési *et al.* (2006) estimated the resource potential of the Batouri gold district to be at least 15 tonnes of gold. In 2006, African Aura Resources Ltd. (now African Aura Mining Inc.) acquired the Batouri concession from the previous licence holder SeQued, which is a Germany-based geological consulting service and exploration company. Exploration is currently being done by African Aura Mining at an advanced stage. Exploration pits and boreholes along the shear zone yielded high-grade rock samples containing as much as 66g/t of gold (African Aura Mining, 2009). Gold distribution patterns in soil along this shear zone define two high-priority target areas for large scale mining, namely the Dem–Bote–Kambélé–Mboscoro and the Mongonam–Dimako areas. These areas are characterised by high concentration of artisanal gold mining populations. ASM is a principal livelihood in the area and is believed to be a major contributor to local economic growth as discussed in Chapter Five.

3.11.1.4 Yokadouma

Yokadouma town is located in south-eastern part of the region, near the border with the Central African Republic. It is the administrative headquarters of the Boumba-et-Ngoko Division. The town is linked to Bertoua by a 274 km lateritic road that passes through Batouri. It is very susceptible to seasonal variation and impedes the movement of farm products. In the heart of the wet season, access can only be by motorbikes. Artisanal gold and diamond mining has existed in the Mobilong and around enclaves close to the Central African Republic border since 1933 (Sale, 2003). Of the five ASM districts in the East Region, Yokadouma has the largest population of diamond miners. The population of the Yokadouma area is estimated at about 74,000, with more than two-thirds living in rural settings. Mobilong has approximately 7,000 inhabitants. The ethnic composition of the area includes Baka and numerous Bantu groups. The Yokadouma council operates a logging concession of 21,000 hectares alongside a number of commercial logging companies. There is limited access to social services including health, education, and clean water in the zone. Most services are concentrated in Yokadouma town, with very poor or no services in villages further afield such as Mobilong.

3.11.1.5 Garoua-Boulai

Garoua-Boulai is located in the Lom-et-Djerem Division in the East Region of Cameroon. It lies on the border with Central African Republic. Located 250 km north of Bertoua, it is connected to the East Regional capital by a newly constructed tarmac road. The Cameroon National Office of Statistics estimates the population of Garoua-Boulai to be about 27,882 in 2010. Public and social amenities include schools, hospitals, a market, and several government offices. Main economic activities in the area include: ASM, trading, cattle rearing, food crop cultivation and transport services.

3.11.1.6 Kette

Kette is a district in Kadey Division in the East Region of Cameroon. According to Relufa (2013), the Kette is characterised by extreme poverty and lack of basic services such as electricity. The major activities in the district include ASM, cattle rearing and smallholder farming. Recently, it has become of interest because of the extent and scale of artisanal mining.

3.12 Conclusion

This chapter has provided a general background and context to Cameroon, illuminating the knowledges, resources and legal regimes which the rural people draw on to construct their livelihoods. The Cameroonian mining sector and its potential for transforming the nation has been discussed, as are the developmental challenges. The East Region of the Cameroon and my field research areas within it, have been introduced, as well as the evolution and significance of its mining sector. It is evidenced that small-holder farming is key to rural economic development and transformation in the country, however, in the East Region, a number of factors combine to make ASM the livelihood of choice. Together with the features of this important non-farm informal sector, these have been discussed in Chapters Five, Six and Seven.

The next chapter – Chapter Four – presents my overall research strategy. It focuses on my research approach, methodological design and analytical processes through which the empirical evidence presented in Chapters Five, Six and Seven were obtained.

4 Chapter Four – Research Methodologies

4.1 Introduction

This chapter presents my overall research strategy, the methodological design and the analytical process. I proceed from the most general aspects of the methodology to the details of the applied methodological processes. In the first section I present my overall research approach which documents the way of thinking and studying the social reality in my research. In the second section, I present the specific methodological design that documents the mixed-method (qualitative and quantitative methods) approach, the investigative framework and the techniques used for gathering data. In the last section I document the analytical processes through which the data was analysed, conceptualized, and integrated to form theory. My research schema presented in Figure 4.1 shows the stages, methods and duration of the data gathering phase of my research.

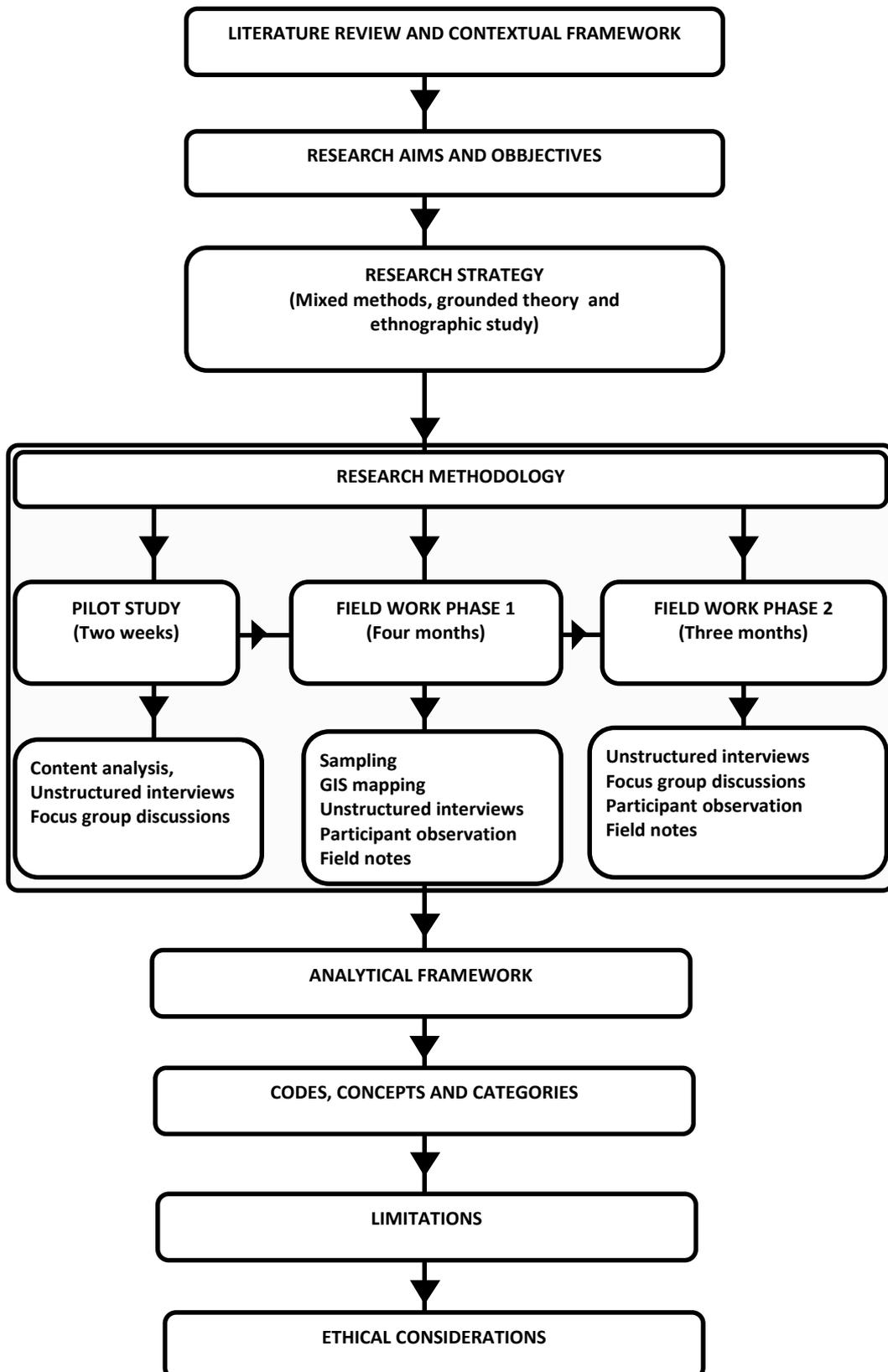
4.2 Research approach

Three main approaches underlie the research: the mixed methodology, the grounded theory approach to data collection and analysis, and ethnography. In this section I explore these three overarching concepts and provide reasons why they were chosen.

4.2.1 Mixed methodology

Mixed methods are a rapidly evolving methodological approach conceptually and practically and are used more often than reported (Seale, 1999). In those studies that have been reported, details of the methodology and process are often lacking, and the issues that arise from using them are often given little attention. Mixed method studies attempt to bring together methods from different paradigms and are sometimes referred to as multi-strategy research due to the ability of the method to integrate qualitative with quantitative methods in research (Strauss and Corbin, 1998; Seale, 1999). Mixed methods designs are conceptually more complex as they provide a basis for data triangulation and a source of different ways of conceptualising research problems.

Figure 4.1. Data collection methodologies adopted



Mixed methods research involves the application of both quantitative and qualitative approaches in a single study, and has been advocated for use because it is considered to be useful in cases where several different but related research questions are examined or when the purpose is to triangulate quantitative and qualitative data addressing one research question.

4.2.2 Grounded theory

Grounded theory is a methodology based on the discovery of theory from data (Glaser and Strauss, 1967, p.1). In *The Discovery of Grounded Theory*, Glaser and Strauss (1967) offered systematic strategies for research practice. They proposed that systematic analysis had its own logic and could generate theory. They intended to construct abstract theoretical explanations of social processes. According to Glaser and Strauss (1967), Glaser (1978) and Strauss (1987), the components of grounded theory include: simultaneous involvement in data collection and analysis; constructing analytical codes and categories from data, not from preconceived logically deduced hypotheses; using the constant comparative method, which involves making comparisons during each stage of the analysis; and advancing theory development during each step of data collection and analysis; and sampling aimed towards theory construction, not for population representativeness.

The purpose of grounded theory is to generate or discover an abstract analytical schema of a phenomenon, which relates to a particular situation in which individuals interact, take actions, or engage in a process in response to a phenomenon (Creswell, 1998, p. 55-56). The study of processes is an essential feature of a grounded theory analysis (Strauss and Corbin, 1990, p. 157).

Strauss (1987) adds that the focus of analysis is not merely on collection or ordering a mass of data, but on organising many ideas which have emerged from analysis of the data (Strauss, 1987, p.22-23). Engaging in these practices helps researchers to control their research process and to increase the analytic power of their work (Bigus *et al.*, 1994; Charmaz, 2003; Glaser, 1994, 1992; Strauss and Corbin, 1998). From a methodological stand point, the main strength of grounded theory is to produce theory

closely related to the phenomenon being studied (Creswell, 1998, p.56). There is, perhaps, little theory on the connections between resource policy, land rights, ASM and sustainable rural livelihoods, meaning the inductive, context and process of the grounded method (Orlikowski, 1993) is useful in this research. Grounded theory has a combination of strengths that make it a popular research tool: It possesses mechanisms that help researchers to avoid feeling swamped by the data; generates rich data from the personal experiences of people; has the capacity to develop theories; and it is a powerful research model with a rigorous procedure (Creswell, 1998; Charmaz, 2006). However, there are some challenges associated with this approach to research that require attention, for example that:

The notion of entering the research scene without preconceptions is sociologically very questionable; the notion of personal involvement in the research raises the point of subjectivity and the level of validity of the findings; the method of theory building (especially of formal theory) is not precise (Lamnek, 1988, p.226).

Nonetheless, the grounded theory is known to add rigour to the research process because of the method of theory discovery.

4.2.3 Ethnographic study

May (2001) describes social life as not fixed but dynamic and changing. He argues that if people's social lives are constantly changing, we must become part of their lives to understand how they change; we must participate in it and record our experiences of those transformations, their effect on people, as well as their interpretations. Knowledge of the social world does not come from logical propositions but rather it comes from experience and the undertaking of detailed and meticulous inquiries through which we generate our understanding (May, 2001).

In this research, understanding the nature of people's social life is crucial. The dynamism of ASM, the influence of resource policy and politics upon it and the overall implications for sustainable rural livelihoods need to be understood to be able fully to explore what interventions may be suitable in the long term. I considered it important to participate

in social relations and seek to understand actions within the context of the observed setting. May (2001) further states that researchers must become part of that environment, for only then can they understand the actions of people who occupy and produce cultures defined as the symbolic and learned aspects of human behaviour which includes customs and language. ASM can be a resilient livelihood choice for people who are vulnerable or looking for economic diversity in their livelihoods, and generates up to five times the income of other rural poverty-driven activities in agriculture and forestry (Buxton, 2013). Understanding the opinions and values of ASM communities and testing interventions for local relevance and practicality is essential, the failure of which perpetuates uncertainties on both structural challenges and potential policy innovations for ASM (Buxton, 2013). Ethnography was considered the most appropriate method for studying and understanding these dynamics. Ethnographers immerse themselves in the lives of the people they study (Lewis, 1985, p.380) and seek to place the phenomena studied in their social and cultural context. Sarantakos (2005) identifies the following as some of the major reasons why ethnography is important as a method for research studies: to observe the culture and interactions within a target community; to tell the story of society's daily life; and to explore the process and outcomes of people's interactions and social networks.

Previously ethnographic research was largely the domain of anthropologists but with recent developments in the social sciences, it has become rather popular, especially critical ethnography (Anderson, 1989; Hammersley and Atkinson, 1983; Hammersley, 1991a, 1991b; Taylor, 2001). The key features of ethnographic research as identified by Hammersley and Atkinson (1995) is that it is a form of field research that studies cultures and employs a holistic approach. This holistic approach was the key reason why ethnography was selected for both phases of the field work. It is conducted in natural settings and entails a 'total sinking' in the field of study (Hammersley and Atkinson, 1995, p.10). The socio-cultural perspective is an important aspect of this research and the ethnographic approach provided the tools to understand the culture through in-depth study and the meanings of the interviewees.

Whilst ethnography was selected as appropriate methodological approach for this study, it is worth noting that a major weakness of ethnographic research is the question of reliability and validity (Seale, 1999; LeCompte and Goetz, 1982). Wolcott (1990, p.127-8) suggests that ethnographic researchers can ensure validity in their work by talking less and listening more; producing exact and accurate notes that are as complete and candid as possible; writing early and in a way that brings readers to the field; and by seeking verification and feedback from the field and/or colleagues.

As stated earlier in this chapter, this research is approached from both ethnographic and grounded theory perspectives. Grounded theory and ethnography give priority to the studied phenomenon or process rather than to a description of setting (Charmaz, 2006). Thus from the beginning of the ethnography, the study was based on what is happening in the setting and making a conceptual rendering of these actions. Charmaz (2006) further argues that, a potential problem with ethnographic studies is seeing data everywhere and nowhere, gathering everything and nothing. The studied world seems so interesting that the ethnographer tries to master knowing it all, which is never actually possible. Mountains of unconnected data grow but they do not say much, because they are insufficiently related to insufficiently rigorous externally defined aims and objectives. This leads to low-level descriptions and lists of categories that are not integrated. With grounded theory, Charmaz (2003) suggests that concentrating on a basic social process can help in gaining a more complete picture of the whole setting than the former approach common in earlier ethnographic work. She states that ethnographers can make connections between events by using grounded theory to study processes (Charmaz, 2003). She further states that the grounded theory emphasis on comparative method leads ethnographers to: compare data from the beginning of the research, not after all the data are collected; compare data with emerging categories; and demonstrate relations between concepts and categories.

Covey and Atkinson (1996) also advocate this approach, arguing that moving back and forth between data and analysis helps to keep the researcher from feeling overwhelmed and to avoid procrastination (Covey and Atkinson, 1996). The ethnographic study for this research takes into consideration the above views, and it is largely based on the

work of Charmaz (2006). These methods were very useful in helping me to maintain control over the research process because they enabled me to structure and organise the study.

4.3 Research methodology

The methodology for this study has been designed to provide answers to my research questions. It combines quantitative and qualitative methods as indicated above. Before the pilot study, I relied on a number of authors' suggestions for collecting different sources of data (Creswell, 1998; Yin, 2003; Benbasat *et al.*, 1987). They advocate the value of different sources of data because they would corroborate findings and complement one another during the subsequent process of analysis (Yin, 2003; Creswell, 1998). In the following sections I present the data collection methods used in this research.

4.3.1 Content analysis

The study was carried out using policy appraisal and analysis of data from secondary sources. The methodology used is similar to that which has been previously reported in the literature (Forton *et al.*, 2012).

Firstly, a detailed content analysis of relevant literature and data from various organisations including data banks such as United Nations agencies and local nongovernmental organisations was undertaken to obtain information specific to Cameroon such as the geology, mining policy and artisanal mining and environmental effects of mining in the sub-region. In addition, artisanal mining as is practised in the East Region of Cameroon was investigated in order to identify areas where improvements were required.

Secondly, a critical review of the statutory policy instruments and laws related to environmental management in Cameroon, with specific respect to mining was undertaken in order to identify existing policy related to mining and sustainable development. The ministerial portfolios of the various ministerial departments in

Cameroon were reviewed and analysed in order to identify specific departments and responsibilities related to mining and mining policy development.

This approach was important because it helped identify the problems with the existing policy and its implementation and also gave a framework against which more sustainable approaches could be formulated.

4.3.2 Geographical Information Systems (GIS) mapping

Identification and mapping of ASM sites was done using GIS, GPS and ArcGIS software. The GPS Garmin 60 CSX was used to locate the ASM sites using meridians and parallels. Before use, the GPS was calibrated and initialized (setup). Data collection format was setup in GPS points taken in WGS 84 UTM Zone 33N. The data was then downloaded from the GPS using the software MN DNR Garmin version 5.1.1, setup in map datum WGS_1984 projected at UTM Zone 33N. The downloaded information was saved as ArcView projected shape files, which were later displayed, analysed and symbolized using ArcGIS-ArcInfo version 10 ArcMap window. Options to reference map objects and correction parameters with respect to geodetic transformations from defined geodetic markers were defined from the Cameroon topographic base maps, correctly referenced to the official reference system of the Republic of Cameroon (geodetic points had a difference of about 122-140 metres -meridians and 25-40 metres parallels with the GPS readings). Data from GIS mapping has been used to produce the map shown in Chapter One, Figure 1.1 and Chapter Three, Figure 3.4.

4.3.3 Focus group discussions

A formal focus group format was developed as a guide during discussions. The main purpose of the focus groups was to explore and understand participants' knowledge, perceptions, beliefs and practices (Kumar, 1987) regarding resource access, ASM and livelihoods. Sarantakos (2005) states that using focus groups as a pre-research method can help to prepare the main study by providing sufficient information about the study object. He further states that group discussion is employed to bring about changes in the group and its members, as a result of the direction and intensity of the discussion and provides valuable information about group processes, attitudes, changes and

manipulation, the attitudes and opinions of group members, and the effectiveness of certain methods.

During the pilot study in May 2012, the focus groups provided an introduction into the attitudes of participants and highlighted the power dynamics of certain groups and informed the research direction. These focus groups also offered access to the construction of the meanings of 'artisanal mining' and 'rural livelihoods'. While the participants interact, the variations of these meanings, and the ways in which the group negotiates and constructs them informed group discussions during phase two of the field work. Lunt and Livingstone (1996, p.96) argue that the use of focus groups can generate diversity and differences either within or between groups, and reveal the dilemmatic nature of everyday arguments. Sarantakos (2005) argues that a focus group approach nevertheless also has weaknesses, the three most important of which are: group members may hide their opinions, for whatever reasons; some members may dominate sessions, while some may not participate at all; and members may offer a collective front and mislead the facilitator.

To address this, unstructured interviews were also subsequently conducted individually with focus group participants, especially with those who did not actively participate to validate some of the findings and to get those opinions that could not be aired publicly. Open ended questions were asked at the start of the discussion to allow participants to answer from different angles and perspectives. These questions were designed to give the participants opportunities to express their thoughts and feelings based on their specific situations. The focus group format and guide was tested on volunteers (students of the Departments of Sociology and Geography, University of Buea, Cameroon) before proceeding with the fieldwork. The focus group format included key questions that needed to be answered and prompts under each key question to encourage the participants to give more substantive answers.

Different studies have used different group sizes in focus group discussions. Therefore studies are not agreed on the optimal size of the focus groups to be used (Morgan and Scannell, 1998). Barbour and Kitzinger (1999, p.8) cautioned that advice about group size and composition in existing guides to focus group research is often didactic and this

can hamper effective application of focus group methods (Barbour and Kitzinger, 1999). The ideal number recommended from the literature of between eight and twelve people is coming mainly from market research and might be too large for many sociological studies. Table 4.1 summarises selected optimal group sizes (Morgan and Scannell, 1998) found in the literature in order to demonstrate the varying sizes of groups that researchers are likely to find in the literature.

Table 4.1: Optimum focus group sizes found in the literature

Author	Optimal focus group size
Morgan (1988, p.43)	4 – 12
McClelland (1994, p.29)	8 – 12
Morgan and Scannell (1998, p.71)	6 – 10
Barbour and Kitzinger (1999, p.8)	3 – 5
Greenbaum (2000, p.3)	7 – 10
Bless and Higson-Smith (2000, p.110)	4 – 8
Bloor <i>et al</i> (2001, p.26)	6 – 8
Sekaran (2003, p.220)	8 – 10
Von Seggern and Young (2003, p.274)	4 - 12

Source: Adopted from (Morgan and Scannell, 1998)

Closely related to the issue of the size of the focus groups is the composition of these groups. Interaction between participants is a key feature of the focus group method and therefore careful consideration of group composition is vital. Cohen *et al.* (2007, p.377) said extreme care should be taken with composition of focus groups, such that every participant is the bearer of the particular characteristic required, or that the group has homogeneity of background in the particular areas, otherwise the discussion will lose focus or become unrepresentative (Cohen *et al.*, 2007).

Morgan and Scannell (1998, p.59) advised that when the participants perceive each other as fundamentally similar, they can spend less time explaining themselves to each other and more time discussing the issues at hand (Morgan and Scannell, 1998). Morgan and Scannell (1998, p.59) explained that generating a productive discussion requires good group dynamics and that depends on compatibility of the participants.

Commenting on the number of focus group discussions to be conducted in a study, Morgan (1998, p.41-8) warned that one group is never enough. Morgan and Scannell (1998, p.82) agreed that using one group is often risky (Morgan, 1998). Cohen *et al.* (2007, p.377) stated categorically that one group is insufficient, as the researcher will be

unable to know whether the outcome is unique to the behaviour of the group. Bryman (2004, p.349) said it is unlikely that one group would satisfy the needs of the researcher, since there is always the possibility that the responses are particular to that one group (Bryman, 2004). The number of focus groups in a study may vary from three or four to over fifty (Barbour and Kitzinger, 1999; Bloor *et al.*, 2001; Morgan and Scannell, 1998).

However, Morgan and Scannell (1998, p.77) said that there is no hard and fast rule about how many groups are sufficient (Morgan and Scannell, 1998). Dealing with too few groups may result in one missing something, or lead to premature conclusions, but using too many can be a waste of time and money. Bloor *et al.* (2001, p.28) pointed out that focus groups are labour intensive in recruitment, transcription and analysis. Therefore, where possible, numbers should be kept down to a bare minimum. The appropriate number of focus groups depends on the research questions, the range of people the researcher wishes to include and time and resource limitations.

Morgan and Scannell (1998, p.77) stated that the biggest issue in determining the number of groups is the underlying diversity of what people have to say. If practically everyone has the same thoughts on a topic, this will be evident after a few groups and the “theoretical saturation” will be reached rather soon, whereas when the responses are more diverse, it will take considerably more groups to hear what people have to say. In this study, 15 focus groups were conducted in five of the six districts, with participation from key stakeholders involved in the ASM sector. As shown in Table 4.2, the group sizes ranged from 5 to 25.

Table 4.2. Summary statistics of the focus group meetings held during the fieldwork

Location	No of focus groups	Size of focus groups	Composition of focus groups
Batouri	6	8 – 25	ASM workers, community leaders, CAPAM officials
Boden-Colomines	3	6 – 12	ASM workers, community leaders, CAPAM officials
Betare-Oya	3	6 – 15	ASM Workers, community leaders, CAPAM officials
Yokadouma	2	6 – 8	ASM workers, community Leaders, CAPAM officials
Garoua-Boulai	1	5 – 8	ASM workers, community leaders, CAPAM officials

Source: Author’s fieldwork, 2012/2013

There was no focus group discussion in Kette for a number of reasons: most of the camps and villages are in enclaves with no access roads; the camps are several kilometres apart (up to 150 km); the miners' union president in the district (the only person with the authority to rally members and hold meetings) was in hospital in Batouri, hence data collection was limited to interviews and participant observations. Given such circumstances, and because informed consent could not be obtained in Kette, data collection in the district was opportunistic.

4.3.4 In-depth interviews

I used in-depth interviews throughout the study to reveal the meanings, narratives, experiences, feelings and motivations (Collis and Hussey, 2003; Yin, 2003; Tacchi *et al.*, 2003; Walsham, 1995) around resource policy, land rights, ASM and sustainability.

A research interview (see Appendices E, F and G) involves verbal administration of the interview guide. Interviews are defined as face-to-face encounters between the researcher and the respondents, for the specific purpose of obtaining research-relevant information (Kothari, 2004; Neuman, 2006; Mugenda and Mugenda, 2003). The interview method is considered to be one of the most common and effective ways of understanding our fellow human beings (Denzin and Lincoln, 2005, p.698). The purpose of interviewing has been defined by Patton (2002, p.341) as to find out what is on someone's mind (Patton, 2002). People are interviewed to discover things that cannot be directly observed. Interviewing involves the gathering of data through direct verbal interaction between individuals. Some authors differentiate interviews from questionnaires, where the respondents are required to record in some way their responses to set questions (e.g. Cohen *et al.*, 2000, p.269). This false dichotomy has been addressed by Simon (2006) who argues that interviews and questionnaires do overlap one another. The major attractions of the interview method of data collection, when compared to other methods, as pointed out by Burton (2000, p.323), Cohen *et al.* (2000, p.269), Hannabuss (1996, p.22-3) and Robson (2002, p.272), are the following: 'Interviews have a larger response rate than questionnaires, because respondents become more involved and hence more motivated; interviews enable more to be said

about the research than is usually stated in a covering letter to a questionnaire; they are better than questionnaires for handling more difficult and open-ended questions' (Robson, 2002, p.272). In conducting interviews the interviewer is able to answer questions concerning the purpose of the interview and any misunderstandings experienced by the interviewee. Interviews are much more suitable for people with limited literacy than a questionnaire, and have the advantage of providing responses in the form in which respondents think and use language; Interviews have been characterised as the most effective way of enlisting the cooperation of most populations; and the quality of data obtained through interviews is usually superior to that obtained by other methods (Burton, 2000; Cohen *et al.*, 2000; Hannabuss, 1996; Robson, 2002).

Interviews are normally flexible and they provide an interviewer with the opportunity to probe and ask follow-up questions. In so doing, more information and a greater depth can be obtained from an interview than through other techniques (Kothari, 1990, p.98). For these reasons, interviews have been used in this study. Simon (2006) notes that the types of interviews and questionnaires used for qualitative research differ in terms of the extent to which the responses sought are to be restricted or open-ended. He states that it is important to know what the researcher wants to find out, from whom and why, at the outset, so that the interviews and questionnaires can be designed accordingly. Interviews used for research purposes can be divided into various different types. According to Cohen, *et al.* (2000, p.270), the number of types of interviews given is frequently a function of the source one reads (Cohen *et al.*, 2000). Kvale (1996, p.126-7) cautioned that interviews differ in the openness of their purpose, their degree of structure, the extent to which they are exploratory or hypothesis-testing, whether they seek description or interpretation and whether they are largely cognitive-focused or emotion-focused (Kvale, 1996). Cohen *et al.* (2000, p.270), Denzin and Lincoln (2005, p.698), Leedy and Ormrod (2005, p.146), Robson (2002, p.268) explained that the major difference between interviews lies in the degree of structure in the interview which, to some extent, links to the 'depth' of response sought (Cohen *et al.*, 2000; Leedy and Ormrod, 2005; Robson, 2002; Denzin and Lincoln, 2005).

An interview guide was developed and refined as investigations progressed. During the course of the initial interviews, some questions were modified and rephrased as the effectiveness and ineffectiveness of certain questions was revealed. They were also refined as key recurrent threads emerged and in most cases it was adapted to the actual circumstances of the interviewee. The main languages used during interviews were French and English - the official languages of the study area and the Republic of Cameroon as a whole. Most interviews were conducted French except a few with government officials and international NGOs which were in English. My proficiency in both languages was very useful because the interviewees could articulate their views more clearly in the language with which they were more comfortable.

Unstructured interviews were chosen because of their open-ended character. May (2003, p.121) argues that in moving from a structured interview for which a questionnaire is used to the unstructured interview, researchers shift from a situation in which they attempt to control the interview through predetermining questions and thus teach the respondents to reply in accordance with the interview schedule, to one in which the respondent is encouraged to answer a question in their own terms. He further states that this creates an unstructured situation of qualitative depth, which allows the respondents to answer without feeling constrained by pre-formulated questions with a limited range of answers (May, 2003). Such an approach to data collection was taken as opposed to more structured research methods like surveys and questionnaires because of their flexibility, legitimacy, and usefulness as data collection methods in such research settings (Bailey, 2007; Willis, 2006). They were also appropriate considering the practicalities often experienced when working within small-scale mining operations and surrounding communities, where individuals are often transitory, and to maintain a structured approach to questioning and interactions is challenging. Appropriate care was taken to word questions in a non-leading, open-ended, understandable fashion, and to avoid awkward or unduly personal topics (Bailey, 2007).

Every interview began with a brief description of what the research was attempting to achieve and how the information respondents provided would be an important part of

meeting its objectives. Each respondent was also assured that their responses would remain anonymous in the thesis. Whilst it was well understood that differing perspectives and interpretations of information or power/status relationships between interviewer and interviewee exist in conducting and collecting information from interviews (Bailey, 2007; Momsen, 2006; Willis, 2006; Apentik and Parpart, 2006), the intention was to be approachable, 'honest and accountable' (Brydon, 2006, p.31) about all aspects of the research with all interviewees, and to make the interviews as informal and open as possible to put those taking part at ease. Participants were invited to ask questions about any aspect of the conversation, which often led to further conversations between the interviewer and interviewee.

An initial 520 interviews were conducted in the six ASM locations – Batouri, Boden-Colomine, Betare-Oya, Garoua-Boulai, Kette and Yokadouma. An attempt was made during the interviewing to select a wide range of participants to include all stakeholders involved in the sector. After analysing the preliminary interview data, emergent themes were identified. This led to further interviews in some communities in Batouri and Betare-Oya to corroborate the responses obtained during the first set of interviews conducted. At the end of the interviewing process, responses from 389 respondents were selected for this research.

The selection of the miners was opportunistic due to the lack of baseline data on numbers and locations of ASM workers in Cameroon.

4.3.5 Participant observation

This is a central research method for ethnography and formed a major part of the study (DeMunck and Sobo, 1998). Participant observation was developed in the late 19th century as an ethnographic field method to study small, homogenous cultures (Tedlock, 2003). Participant observation could be defined as “the process of learning through exposure and involvement in day to day or routine activities of participants” (Schensul *et al.*, 1999). It could also be considered as the most scientific method in qualitative research because it gets close to the people and allows researchers to observe what people do, while all the other empirical methods are limited to reporting what people

say about what they do (Gans, 1999). This method was used during the ethnographic study as an avenue to build informative and research relationships with ASM communities and learn about practices in their setting through observing and participating in its activities. These observations also provided the context for sampling and testing the appropriateness of the interview guides (DeWalt and DeWalt, 2002). Participant observation was also used to triangulate conflicting research data and check the validity of participant's claims with the practicalities observed.

The observations focused on the studied processes, and enabled me to examine nonverbal expressions of feelings (Schmuck, 1997), determine daily routines and actions of the researched, and provided detailed insight into the life of an ASM worker in East Cameroon. Marshall and Rossman (1995) argue that participant observation allows researchers to check definitions of terms used in interviewing participants and observing events that informants do not share because doing so would be improper, rude or insensitive, and observe situations that informants have described in interviews, and thus warn them about distortions or inaccuracies in the description provided by these informants (Marshall and Rossman, 1995). Fine (2003, p.41) suggests that ethnography is most effective when one observes the society under study in scenarios that empowers one to explore organisational routines of behaviour rather than individual feelings for example.

The observations included formal events like camp meetings, traditional council meetings as well as informal events like interacting with miners in the pits, casual conversations and socialising in local bars. Social events such as cultural celebrations, gatherings, street events and private occasions were also observed. These observations were documented in detailed field notes for subsequent analysis. The insider positionality I assumed in Chapter One, Section 1.5 facilitated these observations and 'opened doors' to new lines of enquiry.

4.3.6 Field notes

A field diary was maintained throughout the field work. Field notes were the second primary sources of data I collected during the ethnography. My field notes contain

detailed descriptions and explanations of observations. I used field notes to record observations and also to develop my ideas and document my interpretations. The field notes were also useful as prompts during interviews where I wanted to delve further into certain threads I had observed and in situations where participants gave one word answers such as *yes* or *no*.

According to Charmaz (2006), in addition to recording individual and collective actions and containing full notes with anecdotes and observations, field notes of observation in a grounded theory research may also emphasize significant processes occurring in the setting; address what participants define as interesting and/or problematic; attend to participants language use; place actors and actions in scenes and contexts and become progressively focused on key analytic ideas (Charmaz, 2006).

Field notes were written out fully at the end of each day. These provided a log of the main activities and events of the day that I observed and participated in. They also included details and sketches of locations, activities and events such as when, where, and what happened, what people said and what they did. More importantly, they included my own interpretations of these activities and identified concepts for possible theoretical categories. My personal opinions and reflections were documented in the notes as well. The field notes were also used to develop ideas and theoretical categories which were used for coding and analysis. At the end of the fieldwork I had produced several pages of hand-written notes and sketches.

Data were collected over a period of seven months from December 2011 – April 2012 and from June 2012 to September 2012. During this period I took field notes which detailed individual and collective actions under the studied process, and I became progressively more focused on key analytical ideas as the study progressed. This meant that in the first ASM camps the interviews and observation were more general and in the latter sites I sought to refine the theories that were emerging, so the interviews and observations became more focused and specific. This focus was not so rigid as to impede the development of new analytical ideas. The process actually made the differences in the other sites more obvious. I found this process most useful in fleshing out the core analytical themes I wanted to understand and explain.

Written field notes about these observations included location, time of day, persons present, languages used during interaction, topics discussed, duration and nature of information exchanged, activities undertaken or tasks performed. On five occasions, I provided transportation and accompanied market women and local male traders to their stalls and observed their interactions with others.

4.4 Analytical framework

The grounded theory adopted for this study meant that no formal analytical framework with analytical categories was included as this could have imposed a structure that would pre-explain the data. I wanted the data as far as possible to tell their own story, where theory is developed directly from the data itself (Glaser and Strauss, 1967). The data analysis involved generating concepts through the process of coding which represents the operations by which data are broken down, conceptualised, and put back together in new ways. It is the central process by which theories are built from data (Strauss and Corbin, 1990, p.57). It is essentially a bottom up approach to data analysis, and begins at the word or sentence level and moves to a higher level of abstraction by grouping conceptually-related focused codes.

The analysis was conducted at two levels during the research. The first level was during data collection, and the second level was at the end of each phase of field work. The analysis after the data collection was designed to make early links between the empirical world and theoretical ideas and checking the *theoretical sampling* (Charmaz, 2003; Strauss and Corbin, 1990). Dey (1999), building on Creswell (1998), provides the following steps for analysis using grounded theory techniques: data analysis is systematic and begins as soon as data are available; data analysis proceeds through identifying categories and connecting them; further data collection (or sampling) is based on emerging concepts; these concepts are developed through constant comparison with additional data; data collection can stop when no new conceptualisations emerge; data analysis proceeds from open coding (identifying categories, properties and dimensions) through axial coding (examining conditions,

strategies and consequences) to selective coding around an emerging storyline (Dey, 1999).

The resulting theory can be reported in a narrative framework or as a set of propositions (Dey, 1999, p.1-2). The analytical framework involved four major steps. The first and second stages were on-going during data collection in the three phases of the field work. I was continually refining, adding, deleting and renaming possible categories. I could not fully conduct axial coding while in the field for two reasons. One was the time constraints. I was working in different sites and I spent a lot of time collecting data that needed to be reviewed on a daily basis to identify important issues for further data collection. Second, I needed to have a better picture from all the study sites to be able categorically to identify and make connections between concepts. The last two stages were conducted after each phase of field work.

I had four types of data to analyse: interviews, field notes, data from focus group discussions and data from content analysis. The same analytical process was applied to all the data collected, although data from the focus group discussions were slightly different. As the discussions were recorded, they were reviewed in turn and I listened to the recordings of the discussions several times as they were at times noisy. During this process I identified key themes that emerged during discussions and documented the different positions that emerged under each theme. Then I summarised each of the different positions and wrote down the verbatim phrases that represent each of these positions. Once this process was completed on all the focus groups I compared and synthesized the themes and phrases that emerged from each focus group, identifying the recurrent ideas. Then I interpreted these recurrent ideas based upon other findings that emerged in the groups and identified the differences expressed for each topic, summarizing the findings and group discussion. This process produced rich data that were used in the subsequent analysis.

4.4.1 Codes and concepts

Coding means categorising segments of data with a short name that simultaneously summarises and accounts for each piece of data (Charmaz, 2006, p.43). Grounded

theory coding is a form of content analysis to find and conceptualise the underlying issues amongst the 'noise' of the data. Coding is the pivotal link between collecting data and developing an emergent theory to explain these data. Through coding, one defines what is happening in the data and begins to grapple with what it means (Charmaz, 2006). Strauss and Corbin (1998, p.65-68) recommended coding by micro-analysis which consists of analysing data word-by-word and coding the meaning found in words or groups of words (Strauss and Corbin, 1998).

This analytical technique of coding by micro-analysis of the data, word-by-word and line-by-line, had its setbacks. First, it was very time consuming. The transcription of each interview contained a mass of data that had to be studied to locate the information relevant to the research topic. Second, it led to confusion at times. There were times when I lost focus in the early weeks of the research. I had a number of doubts about what it was that I was looking for and even considered changing my methodology all together. In both cases, I was unsure whether this was due to the fear of failure or the role of anxiety in research or both. Further reference to the grounded theory literature uncovered the rift between Glaser (1992) and Strauss (1987) on this issue (Glaser, 1992; Strauss, 1987).

Glaser (1992, p.40) condemned this micro-approach and referred to it as producing an over-conceptualisation. I chose therefore to follow Glaser's proposed method of identifying key points (rather than individual words) and allowing concepts to emerge. This involved the selection of key points that address the research questions. Dey (1993, p.94-97) talks of bits of data that are considered important (Dey, 1993). Therefore, I sought to identify key points in the data and marked them ready for analysis and coding. This method of identifying key points was very effective in helping me to sort, organise and manage the analysis. The coding process started by taking a sentence at a time and examining it. I studied fragments of data - words, lines, segments and incidents – closely for their analytical relevance. While in the concept coding, I selected what seemed to be the most useful initial codes to test them against my extensive data. Throughout the process I was comparing data with data and then data with codes. I made constant comparisons. During the first few interviews I thought everything had gone wrong, and

started asking myself several questions: What is going on here? What is the situation? What is the person saying and doing about that situation? Therefore, what categories are suggested by this sentence? I would then code the second interview with the first interview in mind and code subsequent interviews (or data from other sources) with the emerging theory in mind. At the end of this process I produced an extensive list of initial codes which I then had to group into concepts. These concepts were groups of initial *codes* that went together because they share similar themes or address similar ideas.

Grounded theory coding requires the researcher to stop and ask analytical questions of the data collected (Charmaz, 2006). My analytical path therefore started during data collection. I would write analytical memos about the data being collected. Alongside the coding procedure, I wrote analytic memos in order to build theoretical ideas around the identified codes (Charmaz, 2006; Dey, 1999; Glaser, 1978; Strauss, 1987; Strauss and Corbin, 1990; Urquhart, 2001) because memos are the theorising write-up of ideas about codes and their relationships as they strike the analyst while coding (Glaser, 1978, p.83). The combined coding and analysis procedure is conducive to generate theory more systematically (Glaser and Strauss, 1967, p.97). These memos were sometimes analytical questions which helped to direct subsequent data collection towards the analytical issues I am defining. During the analysis of an interview, for example, I would note words and phrases that the interviewee was using that highlighted an issue that was of importance or interest to my research problem. This was noted and described in a short phrase. If this issue was mentioned again in the same or similar words, it was again noted (Allen, 2003). By the end of each phase of field work I had long lists of initial codes and concepts that I later streamlined after the data collection was complete and used for further analysis.

4.4.2 Analytical categories

By comparing each concept in turn with the other concepts chosen, further commonalities could be found which formed even broader categories, enabling the coding to move to a higher level of abstraction. Glaser and Strauss (1967, p.105-115) described this method of continually comparing concepts with each other as their constant comparative method. In effect, a category is a theme or variable which makes

sense of what the informant has said and what I had observed (Glaser and Strauss, 1967). I interpreted these in the light of the situation under study and the emerging theory. By applying the constant comparison technique to each concept in turn, common themes were found among categories.

I also used axial coding to relate codes (categories and concepts) to each other, via a combination of inductive and deductive thinking. In axial coding, categories are related to their sub-categories, and the relationships tested against data (Strauss and Corbin, 1998). It facilitated building connections within categories - that is, between categories and concepts and thus served to deepen the theoretical framework underpinning the analysis.

4.5 Limitations

4.5.1 Time factor

The first major limitation was the time factor. Doing research in three phases takes a great deal of time; it takes time to build a relationship with the target audience and prepare them to accept such an in-depth and scrutinizing approach and it takes time to gather data and carry out many levels of interpretive analysis. The overall process of this methodology can be overwhelming for the researcher. Ultimately I spoke to over 540 people during the course of this research.

Another issue that may be considered by some as a limitation is the notion of going into the field without fixed frameworks and prepared hypotheses. With a flexible and responsive approach such as this, the researcher may not know where the data will lead. This makes the initial choice of literature difficult because at the start of a study, the researcher may not know what literature will later become relevant.

My methodology required me to re-engage with the literature as new themes emerged, and this in turn affected the structure of the thesis. Second, it is not just the researcher's interpretation and understanding that emerges slowly from the situation but also the research methodology because the research content and research process both develop as the research progresses. This may not give the researcher the control they might need

over the research process, as researchers can only offer participants guidelines on what they will be observing and collecting, none of which can be predicted beforehand. This can be disconcerting for some researchers in institutional contexts that like to have some idea of the outcome of the research before they expose themselves and their institution to the research process.

4.5.2 Lack of reliable baseline data

The third limitation is the lack of reliable and up-to-date data to act as baseline for ASM research on Cameroon. Even where ASM studies have been undertaken, their impact on livelihoods and connection to resource geopolitics are either non-existent or only marginally discussed. This presented a challenge to selecting the right methodology for my research as I was entirely on uncharted territory. This limitation was, however, overcome through a critical review of resource geopolitics, ASM and livelihood literature in countries that share commonalities in culture, customs, perceptions and attitudes with Cameroon such as Ghana, Tanzania and the Democratic Republic of Congo.

4.5.3 Accessibility to mining sites

Inaccessibility of some mining sites, specifically the distances between sites (up to 20km in some cases), meant I was unable to visit many pits and camps in the heart of the rain forest. As a result, it is not known if access to many other pits and camps would have impacted on the outcome of my research.

4.5.4 Stakeholder mistrust

Despite some anecdotal evidence, key government officials in Yaoundé and Bertoua were reluctant to comment on the claimed existence of a revised mining code which addresses the flaws of the 2001 statute. Their response to key questions was therefore treated with caution. They were, however, assured of the strict confidence with which their response would be handled.

There was the initial reluctance of ASM workers to speak to me freely about their practices and perceptions. They did not only take the interviews and focus group discussions less seriously but thought it was a government-sponsored intelligence

gathering exercises aimed at restricting access to certain parts of their forest in return, promising the communities all sorts of amenities from pipe borne water, hospitals, schools to good roads. It appears such a deceitful approach to development from the government has been going on for too long as participants likened this research to one of many 'good for nothing' exercises. This was, however, overcome when they were assured that it was an emerging phenomenon that the government was yet to grapple with.

There were also some ethical research issues associated with the use of two female research assistants during the course of the field work. It was initially feared that the use of two young female assistants as facilitators during the focus group meetings in Kambele I and Kambele II may have influenced some miners into overstating their monthly gold production. It was evident in some pits and camps that ASM workers were more interested in engaging the assistants in other topics than on the focus group subject. This limitation was overcome when these areas were revisited for a repeat focus group meeting with a different set of participants. The data collected during this discussion was corroborated with the initial data to ensure data acquired in the process was robust.

4.5.5 Record Keeping

Finally, documenting the outcomes of this kind of research can be challenging but this problem was overcome by the use of ethnographic research methods, meaning that opportunities which arise from contextual situations can be built on, instead of avoided. As Zuboff (1988) argues, a window of opportunity can be found to explore particular issues (Zuboff, 1988). However, despite the difficult and time-consuming nature of the research, I believe that these limitations are far outweighed by the substantive gains made and can be a very productive research method considering the substance of the research findings.

4.6 Ethical considerations

This research is based on a constructivist paradigm where I interacted constantly with the participants to uncover realities as they are constructed by participants, to represent this understanding (Glesne, 1999), and to reach a joint construction of reality that emerges as a result of a hermeneutic dialectic processes (Postholm, 2003). Thus the thesis represents a joint or collaborative construction (Guba and Lincoln, 1989). This approach and the intrusive nature of the research and the close relationship I had with participants meant that there were important ethical issues associated with the research process. England (1994, p.85) warns us that fieldwork might actually expose the researched to greater risk and might be more intrusive and potentially more exploitative than more traditional methods. She further emphasises that exploitation and possibly betrayal are endemic to fieldwork. This research was designed, reviewed and undertaken to ensure integrity and to protect my research participants from any harm as a consequence of participating in the research. The research process started with an initial assessment of the effects of my research methods and findings on my research subjects. Based on this assessment, I realised the sensitivity in discussing political issues in Cameroon. The contexts and respect for traditions and local leadership were important considerations in the way I approached my research participants and in designing the methodology.

4.6.1 Informed consent

The first ethical concern I had to deal with was the requirement of informed consent (Patton, 2002; Punch, 1994; Angrosino and Mays de Pérez, 2000; Hammersley and Atkinson, 2007). The principles of confidentiality, anonymity and informed consent are regarded by most researchers as core elements of ethical practice (Walsham, 2006; Kitchener, 2000; Hammersley and Atkinson, 2007) alongside related concerns such as the avoidance of deception, harm and exploitation (Glesne, 1999). Informed consent means that research participants are informed about the research and the implications and know what they are being invited to take part in before the research starts, and that

they accept this invitation (Fetterman, 1998; Fontana and Frey, 1998; Stake, 1995; Fontana and Frey, 2000).

The socio-cultural context of my research required that I receive informed consent from the community leadership before proceeding to do research in their communities. The leadership gave me a blanket consent and said I would receive the support of community members. Although I received informal individual consent usually just before I started an interview, I was not always sure whether consent was given because the leaders ordered it and if they totally understood the purpose and implications of the research. I found that participants frequently disregarded my explanations of what their participation would entail because they simply wanted to get on with it and trusted that I would do them no harm. I did, however, assure participants of confidentiality and anonymity by leaving out their names, not recording interviews, and not quoting them personally in discussions with other community members to protect them from any potential backlash.

4.6.2 Confidentiality

A second issue around confidentiality which I had to deal with concerned what should count as data. Conducting research as a Cameroonian of semi-bantu decent meant that I often had knowledge about individuals and issues outside the formal data collection process. As discussed in Chapter One (Section 1.6) the positionality I assumed made it difficult to separate the knowledge I gained from viewing the data generated or from talking informally about the research and findings with other people. As a researcher, this has ethical implications because I had to be mindful of, and to distinguish between, what was public knowledge in terms of participants expressed views in their presentations; what was data generated in the study for public consumption but which require anonymity; and what was private knowledge that I had gained from my personal knowledge of an individual or the circumstances that I did not have the individual's consent to use. Rubin and Rubin (1995) state that it is the researcher's duty to distinguish between private and confidential information and selectively to use information that can answer the research questions (Rubin and Rubin, 1995). Thus it was my responsibility to protect the participants' privacy by retaining information that

could put the participants at risk and keeping certain information out of the thesis without compromising the analytical import of my findings.

Ethical standards also require that researchers should not put participants in a situation where they might be at risk of harm as a result of their participation (Glesne, 1999). Although it is common practice in social research to conceal the identity of research participants through pseudonyms, or changing biographical details in order that individuals cannot be recognised (Corden and Sainsbury, 2004), there is, however, considerable debate about the extent to which it is appropriate to amend data in the interests of anonymity. It has been noted that the more one strives for anonymity and the further it moves from its original context, the less useful are the data (Thomson *et al.*, 2005). I only left out names and retained the biographical information and this was enough for my research participants.

The thing that struck me the most during my interview sessions with participants was their interest in wanting to know what I would do with the information I was collecting from them and how I would use the outputs of my research to benefit them as individuals and their communities. There was an instance during a focus group meeting in Batouri where a pit owner asked if I would share my findings with the government. I tried my best to make them understand that my research was strictly educational but I promised them that I would write a special report which I would send to relevant authorities like the Department of Mines, the Regional branch of CAPAM and community leaders in the hope that they would act upon it. Research participants were clearly interested in changing their disadvantaged position and they hoped that my research would, in some way, help to achieve this. These ethical issues made me to reflect once more on my positionality discussed in Chapter One as a fellow semi-bantu Cameroonian, an insider researching his people, and on a subject I feel so strongly about.

4.7 Conclusion

This chapter has summarised the methodological foundations and processes that directed the course of this research. The methodological design allowed for flexibility in questions and answers, and for exploring wider avenues of inquiry. It began with a pilot

study which informed the suitability of the research methods to answer specific research questions. The multi-method approach to data collection and analysis outlined in this chapter helped in providing insights into the dynamics and complexity of the ASM sector in East Cameroon. The multiple methods also supported data triangulation and added rigour to the research process. The duration of the fieldwork (over seven months) combined with the strong ethnographic focus enhanced the quality of information that has been discussed in Chapters Five Six and Seven. From this perspective, development donors, governments, wider industry players and NGOs who often neglect this sector, focusing on the negative impacts rather than on addressing its structural challenges to improve the sector's opportunities for sustainable development can now see ASM as a resilient livelihood choice for people who are marginalised, vulnerable or looking for economic diversity in their livelihoods.

The next Chapter – Chapter Five presents empirical data, analysis and discussion on aspects of ASM operations in the East Region.

5 Chapter Five - The ASM economy in the East Region of Cameroon: organisational, demographic, economic, social and cultural dynamics

5.1 Introduction

The theoretical framework in Chapter Two illuminated the need for research and policy dialogue on ASM attentive to the cultural, social, economic and organisational contexts of miners in sub-Saharan Africa before any design and implementation of industry support schemes (Hentschel *et al.*, 2002; Hilson, 2009). In this chapter, I present the organisational, demographic, economic, social and cultural dynamics of ASM communities in the East Region of Cameroon, as a precursor to understanding this important non-farm rural sector.

The empirical detail presented here focuses on understanding the dynamics of ASM communities in the East Region and is set to achieve two main objectives: (i) to provide an in-depth analysis of the ASM sector in East Cameroon; and (ii) to generate baseline data that could inform policy and regulation of the sector. The main methods used to achieve these two objectives were field measurements, participant observations and interviews with ASM workers in six gold mining districts in the region as shown in Table 5.1.

Table 5.1. Distribution of the artisanal miners interviewed per mining district in the East Region

Major mining district	Number of artisanal miners interviewed	Proportion of the population of miners sampled
Boden-Colomine	22	5.7
Betare-Oya	34	8.7
Batouri	132	33.9
Yokadouma	42	10.8
Garoua-Boulai	69	17.7
Kette	90	23.1
Total	389	100

Source: Author's fieldwork 2012/13. N.B. The interview variation in this table is based on the population of ASM workers in each of the districts selected for this research

I used key informants during the preliminary stages of the research to identify and locate ASM sites and communities. 389 in-depth and unstructured interviews were conducted

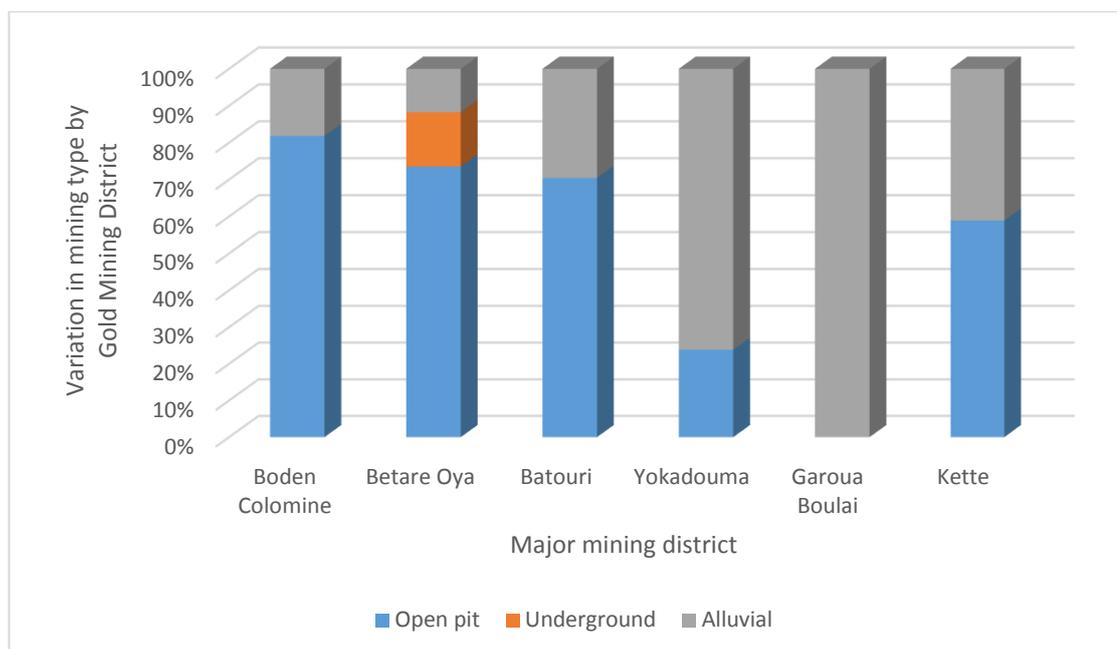
in 24 mining communities in the six gold-mining districts that make up the study area. Each interviewee was given an identification number to denote their district, community and to ensure their anonymity. The responses from the interviews were coded and analysed using SPSS and are presented in six sections within this chapter. In the first section, I present the forms of ASM practised in the regions, the equipment used and sizes of ASM pits. In the second section I outline the organisational structures in each community, labour hierarchies, demographic information of the miners as well as their motivations and needs. In the third section, the data from the productivity and revenue generated from ASM operations is detailed. Some aspects of ASM taxation are also outlined. In the fourth section, ASM gold marketing and value chain issues are presented and interrogated. The interface with LSM and government support for the miners comprises the fifth section. Finally, the chapter presents the environmental and social issues that characterise the communities studied.

5.2 Forms of artisanal and small-scale mining in the East Region

As explained in Chapter Two, ASM is widely considered to be a low-tech, labour-intensive mineral extraction and processing activity in many parts of the world (Hentchel *et al.*, 2002, Hilson, 2009). It is characterised by the use of manual labour to extract minerals from open pits, underground or riverine sources (Common Fund for Commodities – [CFC], 2008).

As shown in Figure 5.1, artisanal gold mining in the East Region of Cameroon is carried out primarily through open pit excavation of alluvial (deposited by water movement), eluvial (disintegrated from the parent rock) and primary (vein) gold deposits. In some instances, underground excavations along mineralized quartz veins result in shallow and narrow tunnels that may link two or more open pits. Many of these tunnels could be found in Betare-Oya. This leads to different configurations of ASM in the area as the space of exploitation encourages slightly different patterns of labour.

Figure 5.1. Types of ASM activities in the mining districts in the East Region



Source: Author's fieldwork, 2013.

The ASM activity in the East Region of Cameroon is characterised by a combination of rudimentary and semi-mechanised processes to extract gold from either open pits (59%) or alluvial sediments and open pits (41%). During the survey, less than 2% of the respondents (in Garoua-Boulai and Betare-Oya) appeared to be using semi-mechanised processes for mining as shown in Table 5.2 and Figure 5.4.

Table 5.2. Use of mechanised, semi-mechanised and rudimentary processes in the six mining districts

ASM district	% of workers using fully mechanised processes	% of workers using semi-mechanised	% of workers using rudimentary processes
Batouri	0	0	100
Betare-Oya	0	6	94
Boden Colomine	0	0	100
Garoua-Boulai	0	5	95
Kette	0	0	100
Yokadouma	0	0	100
Total	0	1.8	98.2

Source: Author's fieldwork, 2013

Figure 5.2. Types of ASM activities identified in the East Region of Cameroon



Open pit excavation of alluvial gold mining in Kambele III (Batouri)



Alluvial mining along the river channels in Betare-Oya



Accessing mineralized quartz veins using rudimentary tools



Gold mineralization in quartz recovered from a pit in Kette



Bulldozer used in a semi-mechanized process in Kette



Use of semi-mechanized washer in Betare-Oya

Source: Author's fieldwork, 2013

Figure 5.3. Typical sizes of ASM pits in the East Region of Cameroon



ASM by a household in Chantier Mbunduru-Foro



An entire community of over 100 miners in a single pit in Betare-Oya

Source: Author's fieldwork, 2012/13

Figure 5.4. Tools and equipment used in ASM camps in the East Region of Cameroon



Pick axe



Wheelbarrow



Sluices



Motorised pump



Mechanical digger



Washer



Grinding machine



Unprocessed gold

Source: Author's fieldwork, 2012/13

The sizes of the open pits vary from camp to camp but they largely depend on factors such as the geologic setting, capital investment, types of equipment used, skills and the number of workers involved. As shown in above, pits along placer deposits are much longer and wider than lode deposits. Pits in the latter tend to be deeper because of the slope stability they provide.

As shown in Figure 5.4, semi-mechanised processes included the use of a mechanical JCB, reportedly seized from Chinese mining companies that were prospecting in the area without the chief's authorisation – further underscoring the regulatory ineptitude of both CAPAM and the GoC as discussed in Chapter Six. With the exception of these instances, the miners rely primarily on the use of rudimentary equipment such as pick axes, spades and washing pans for gold extraction. In some sites, wheelbarrows, dewatering pumps and corn mills locally adapted to grind gold-bearing rocks are used.

The discussion that follows argues that ASM is viable because of the productivity and income levels of the activity, despite the rudimentary methods used. The attractive income from ASM vis-a-vis other economic activities makes it a livelihood of choice.

5.3 The organisation of ASM in East Cameroon – labour hierarchies, population, motivations and needs of miners

In this section I present the structure of a typical ASM camp in the region, focusing on the number of ASM workers per pit, and how camps are organised and managed. The skills and roles of each type of miner are discussed, the reasons why they opt for ASM presented as well as their ethnic and cultural backgrounds.

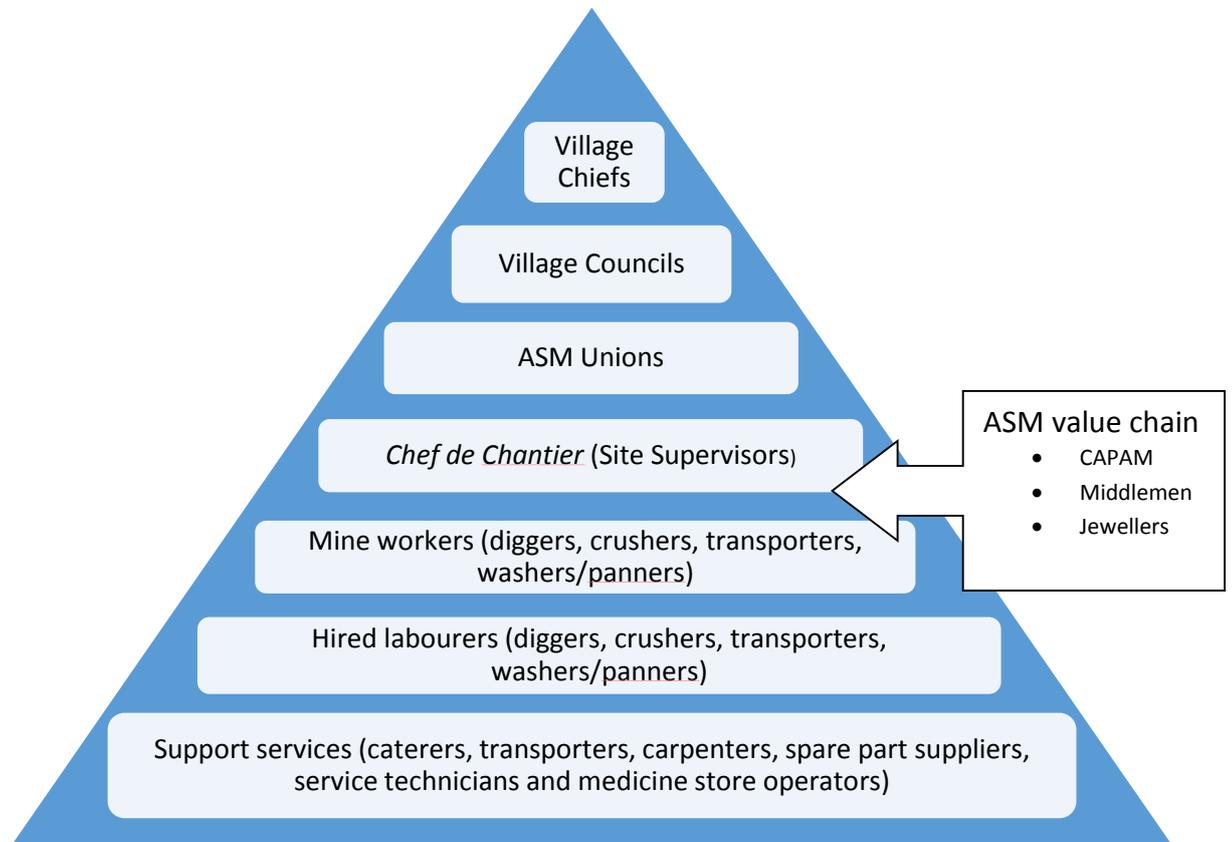
5.3.1 Organisation of pits, labour hierarchies and ASM populations

5.3.1.1 Organisational structure of ASM communities

There are various organisational structures in place across the 24 mining communities studied; however there are no major differences between the structures.

Figure 5.5 below represents the organisational structure of a typical mining community in study the area.

Figure 5.5. The organisation structure of ASM communities in East Cameroon



Source: Author's fieldwork, 2012/13

Village chiefs are the official government representatives in each village in Cameroon and their roles are recognised within the laws of the land. Their responsibility as custodians of traditions, customs, culture and land often extend to incorporate leadership and representation in community development initiatives. The village chiefs govern their chiefdoms and subjects with the help of community leaders who constitute the village councils. Together they take or influence major decisions typical amongst which are land distribution, use and ownership rights as well as adjudication over customary and land related issues. As illustrated further in Chapter Six, Figure 6.2, authority and power in these flows downwards in all the camps visited. Of the 24 mining communities studied, 20 are villages with long-established histories, traditions and customs. The remaining 4 communities (*Chantier Ali Baba*, *Chantier Tros de Rat*, *Chantier D'Armand* and *Chantier Mbunduru-Foro*) derive their origins from recent ASM gold mining. That notwithstanding, these four communities operated the same organisational structures as the twenty villages.

Each of the 24 mining communities studied has an ASM union or co-operative (personal observations, 2012-2013). All miners interviewed recognised the benefits of membership of a union or cooperative in their respective areas. In Cameroon, these are called *Njangi groups* or *Tontines* and are associations formed by groups of individuals to implement social cohesion within their communities but more importantly to save money and have access to funding through significantly more competitive rates than mainstream banks. As argued by Rowlands (1995), people's perception of their local financial landscape springs from an opposing desire to maintain a strong social discipline over the circulation and consumption of money. In the East Region, these *Njangi* groups help promote a liberalizing ethos of progressive individualism through the development of entrepreneurial spirit (Rowlands, 1995). The unions also arbitrate over disputes between members at pit / camp level, negotiate mineral prices with CAPAM, provide support to members affected by accidents and represent ASM workers in stakeholder meetings with the government and local and international NGOs. A total of 96% of the miners in all 24 mining communities stated that they belong to the ASM cooperatives in their areas.

In each of the mining communities, several pits are excavated to access the gold-rich layer before the commencement of extraction. The pits vary in size and shape and estimates through participant observation and field measurements indicate they range anywhere from 5 metres long, 4 metres wide and two metres deep to up to 300 metres long, 100 metres wide and 50 metres deep. These pits assume different shapes (mostly rectangular, but other shapes such as squares and circles were evident). The sizes of these pits vary from camp to camp but their parameters depend largely on factors such as the geological setting, capital investment, types of equipment used, skills and the number of workers involved. ASM pits on alluvial deposits were noted, by the author, to be much longer and wider than on lode deposits. Pits in the latter tend to be deeper because of the slope stability they provide. Underground mining is practiced in only 3 of the 24 mining camps, all in the Batouri district.

Most pits in the study area are under the control of families and land owners and there is no central authority or control at any level. The number of mine operatives per pit ranges from 1 to over 300. In some communities in Betare-Oya, and Kette, over 300 workers were observed mining in a single pit, which testifies to the practice of large-scale ASM in these communities.

5.3.1.2 Labour hierarchies

Each pit is headed by a supervisor called *chef de chantier*. In some communities such as Kambele III, Kambele II, Dem and Mongonam, they are the land owners or their representative. In others, such as Garoua-Boulai and Yokadouma, they are the oldest or the most experienced miner. These *chefs de chantier* have special mining rights and exercise leadership in the pits. They occupy the centre of the pit where gold mineralisation is believed to be highest. Further away from the centre of the pit, patches or sectors (depending on the shape of the pit) are allocated to workers who must first of all work for the *chef de chantier* as diggers, transporters, crushers, washers or panners, depending on the nature of the pit and their area of expertise. On a typical 8 hour working shift, they spend the first 4 hours working for the *chef de chantier* and the remaining 4 hours for themselves. These arrangements are monitored and enforced by the *chef de chantier* or anyone acting on their behalf. These workers multi-task by undertaking digging, crushing, transportation, washing and panning to recover gold for both their pit supervisors and for themselves.

In many cases, especially in large pits, both the *chef de chantier* and mine workers hire labourers to perform any of the tasks in the production chain on a daily rate of CFA Francs 2,500–3,500 (US\$5.00–7.00) depending on the area, task and experience of the miner. Hired labour is dominated by students from surrounding schools and civil servants to a lesser extent. Whilst the *chefs de chantier* do not depend on middlemen to finance the labour requirements of their operations, they do not have the finances to purchase modern equipment due to the poor savings culture amongst ASM workers in the area. The absence of micro-credit facilities in the area further undermines their ability to sustain the income-generating potential of ASM, as argued by Hilson and Ackah-Baidoo (2011). They assert that micro-credit would help operators acquire

superior machinery, and put them in an improved position to hire labourers and decrease their dependency on middlemen.

Some pits are operated as family businesses with up to 5 workers involved in the activity. These typically consist of a man as head of the pit, his wife and children. Labourers are hired occasionally to perform certain tasks and the mode of compensation is either US\$ 5.00–7.00 daily rate or a pre-agreed proportion of the gold-bearing gravels recovered from the pit during the shifts that they are hired.

All mining pits in the communities studied are situated on primary deposits, making recovery rates very high. This will be discussed later in this chapter, but it suffices to state here that some ASM workers operate outside the structure described above. In all the communities studied, women and children scoop gold-rich sediments along gullies after heavy rains. They stockpile these sediments next to purpose-built panning ponds besides their homes as shown in Figure 5.6. There is no restriction on where this category of miners can undertake their activity. These women and children are not accountable to anyone, with the latter not even accountable to their parents.

The unique organisational structure and labour dynamics ensure equal opportunities for finding gold to both *chefs de chantier* and mine workers as both parties tend to depend on luck and superstitious beliefs for success, and offer an opportunity to understand how this feature of ASM in Cameroon is parallel to other sub-Saharan African countries such as Ghana and Tanzania. In the case of the latter, Bryceson and Jønsson (2012) noted a three-tiered structure consisting of Primary Mining Licence owners, Pit Holders and Diggers in which the proceeds are shared in the following proportions: 30% to the Primary Mining Licence owner, 40% to the pit holder and 30% divided amongst the diggers. It is not known if the situation in Cameroon is still undergoing transition as this has not been documented before. This study therefore provided a baseline upon which future comparisons could be made. Further afield from the pits, support services such as carpentry, motorcycle transportation, catering services, light maintenance, provision stores, spare part suppliers, medicine stores and telephone/internet services thrive

from the economy sustained by ASM. The extent to which ASM 'spawns' these downstream activities is presently unknown, but worth investigating.

Figure 5.6. Women and children in ASM in East Cameroon



Children involved in ASM in Kambele I. They are mining in their own right with no parental control



Female student in Kambele II undertaking ASM during weekends



ASM is enshrined in family life. Children are exposed to the activity at a young age



Women panning for gold in Yokadouma



These three-year old girls in Kambele II can differentiate gold from other minerals



Mum and baby are in it together as they are culturally bonded until she becomes a teenager

Source: Author's field work, 2013

Figure 5.7. Alternative rural livelihoods in the ASM areas



Trading in Kambele II



Farm produce in Batouri market



Hunting in Kambele III



Technicians repairing a water pump in Mboscoro



Thatch weaving in Chantier Mbunduru-Foro



Transportation in Kambele II

Source: Author's field work, 2013

5.3.2 Demographic information of ASM populations in the East Region

Taking stock of the number of people involved in ASM is an important census activity that could generate reliable data to inform policy and support schemes for the sector. The distribution of ASM workers in the region on the basis of my research is shown in Table 5.3 (major mining districts) and Table 5.4 (mining villages and mining camps). There is a significant variation in the number of workers involved in each mining district and mining village/community.

Table 5.3. Distribution of interviewees in the major mining districts

Mining district	Number of interviewees	% of total interviewees
Boden-Colomine	22	5.7
Betare-Oya	34	8.7
Batouri	132	33.9
Yokadouma	42	10.8
Garoua-Boulai	69	17.7
Kette	90	23.1
Total	389	100.0

Source: Author's fieldwork, 2013

Table 5.4. Distribution of interviewees in the mining communities / villages

Mining district	Mining community	Total number of interviewees	Relative proportion of the Total	Cumulative percentage of each mining district
Boden-Colomine	Chantier Ali Baba	4	1.0	5.7
	Chantier Tros de Rat	8	2.1	
	Chantier D'Armand	10	2.6	
	Mbal	5	1.3	
	Mbitazare	5	1.3	
Betare-Oya	Madepo	8	2.1	8.7
	Loundi	11	2.8	
	Sarambi and Ngaikada	5	1.3	
	Kambele III	29	7.5	
	Kambele II	15	3.9	
Batouri	Kambele I	4	1.0	33.9
	Dem	14	3.6	
	Mongonam	17	4.4	
	Mboscoro	29	7.5	
	Dimako	24	6.2	
Garoua-Boulai	Gado	20	5.1	17.7
	Minkala	21	5.4	
	Gbata	28	7.2	
Yokadouma	Mobilong	19	4.9	10.8
	Papam	13	3.3	
	Nonpenda	10	2.6	
Kette	Beke	37	9.5	23.1
	Kana	25	6.4	
	Chantier Mbunduru- Foro	28	7.2	
Total		389	100.0	100.0

Source: Author's fieldwork, 2013

The frequencies and percentages in Table 5.3 and Table 5.4 shows that ASM gold mining is concentrated in the Batouri (33.9%) and Kette (23.1%), districts from where 57% of the interviewees come. The concentration of miners does not necessarily reflect the quality of the gold-bearing rocks as productivity tends to be higher in Betare-Oya than in Kette. Within each major mining district, the concentration of miners varies from village to village. There are high occurrences in Kambele III and Mboscoro (7.5% of the total population located in each of these communities) in Batouri, Beke (9.2% of total population sampled) and Chantier Mbunduru-Foro (7.2% of total population sampled) in Kette. Previous studies such as Onana and Nogma (1998) and Ingram *et al.* (2011) were focused primarily on roadside communities, and as a result, were unable to provide the breadth and depth required to inform policy, reform and support schemes for the sector as noted by the author (Onana and Nogma, 1998; Ingram *et al.*, 2011). Additionally, the samples upon which such studies were based were relatively small to be able to replicate their results in other parts of the region or country. My results therefore constitute the most comprehensive coverage to date of ASM in the East Region.

Because of the near universal union membership, the number of workers involved in the ASM production chain in the study area could be projected using numbers from ASM union membership. Table 5.5 shows membership with ASM unions in the six major gold districts studied.

Table 5.5. ASM union membership in the gold mining districts surveyed

Mining District	Number of ASM workers registered with ASM unions	Population of the Mining District
Boden Colomine	4,195	21,122
Betare-Oya	9,968	25,300
Batouri	12,308	46,500
Garoua-Boulai	9,200	57,000
Yokadouma	6,220	28,500
Kette	9,400	36,500
Total	51, 291	214,922

Source: Author's fieldwork, 2012/13 and Governor's Office, East Region, Cameroon

The record of registered ASM workers in the East Region is thus far the only reliable estimate of the number of people involved in the sector. A tally of registered ASM union

membership of 51,291 gives the clearest indication of how important and widespread the activity is. Of the 389 ASM workers interviewed, 96% indicated that they were members of their workers union. This means that there could be 2051 (the remaining 4% of unregistered members) ASM operatives not registered with any union. When taken into consideration, this study reveals there could be about 53,342 ASM workers in the six mining districts in the study area alone. This suggests a far greater scale of operation than is currently reported by the GoC.

Furthermore, to understand the social and economic dynamics of ASM, it is necessary to delve beyond individual mine workers and to include their dependents. The data in Appendix VII show that the number of people who depend on each miner in the region ranges from 0-12 (mean of 2.4). This means that about 180,000 people in the region or 22% of its population are ASM workers and their dependents. Taking these figures for ASM dependency as a proportion of the population gives an indication of the number of people who depend on ASM for their livelihood.

Several research papers and donor-sponsored reports on ASM in sub-Saharan Africa have shown a wide variation in the number of people directly employed in the sector e.g. 2 million (Hilson, 2009); 20-30 million (Carmody and Owusu, 2007); 55 million (Onana and Nogma, 1998); 9 million (Geenen, 2012) and 13 million (CASM, 2008). Hilson (2009) argues that such a range of estimates underscores how little is known about the sector. In the case of Cameroon, data on the number of people directly employed in ASM in this region provides a more reliable account of the number of workers involved in the production chain than estimates by government sources e.g. CAPAM (2006) estimates that there could be 20,000–30,000 ASM workers in the entire country. This gross underestimation alludes to both neglect and poor understanding of this important but informal non-farm sector in Cameroon. The demographic features of these workers will be discussed in the next section.

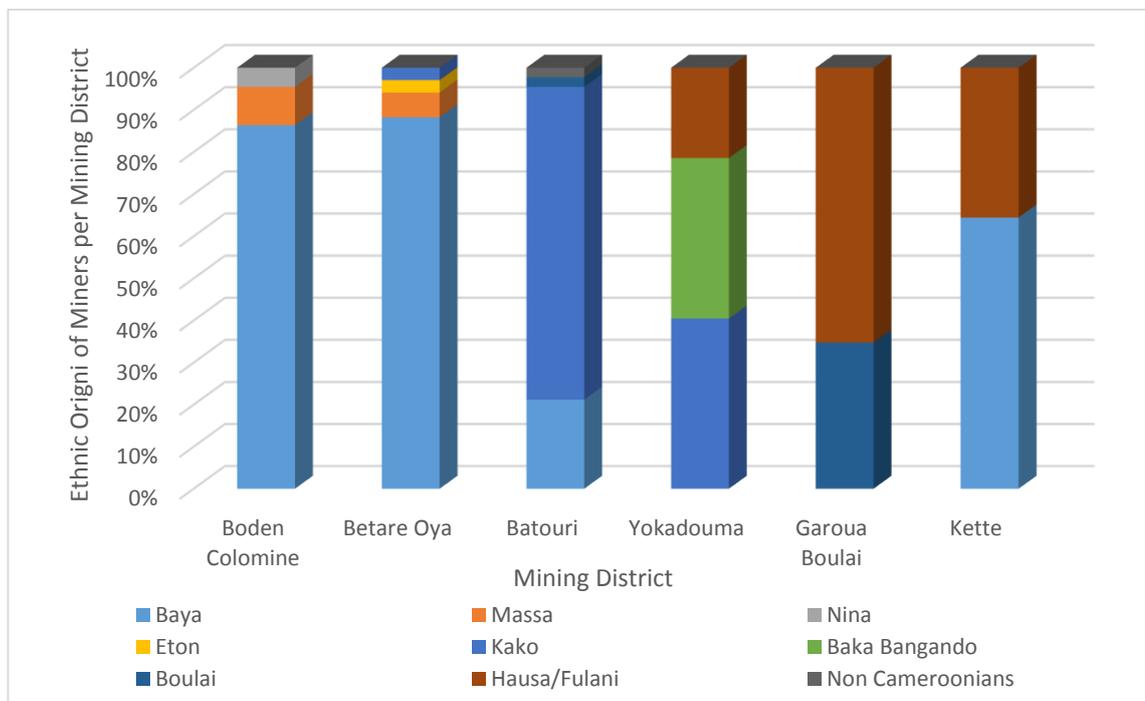
5.3.3 Types of people engaged in ASM – motivations, aspirations and needs

One of the objectives set out at the beginning of this chapter is to generate baseline data that could inform policy and regulation of the sector. Hilson (2009) posits that to achieve such an objective the initial task that must be undertaken, however daunting, is careful analysis of the situation on the ground in order to gain a better understanding of, inter alia, the organizational structures in place, the types of people engaged in activities, and the needs of operators. He suggests that such data should be used to inform policy, and design and implement more appropriate industry support schemes. It is against this backdrop that section aim to provide details on the cultural, social and demographic context of the miners, their motivations and needs.

5.3.3.1 Ethnic background of miners

The ethnic origin of the all the miners interviewed provides an indication of the types of people involved in this activity, their cultural, social and economic backgrounds and how these impact on the social, economic, natural and political capitals in the region. A breakdown of the miners by area of origin is presented in Figure 5.8.

Figure 5.8. Distribution of miners (by origin) in the mining districts surveyed



Source: Author's fieldwork, 2013

The ASM population in each of the 24 communities studied is homogeneous and predominantly Cameroonian (99.3%). The indigenous Baya (Gbaya), Kako and Hausa/Fulani ethnic groups account for over 90% of the 389 miners interviewed. As shown on Figure 5.2 above, the highest proportion (35%) of all miners are from the Baya ethnic group who are present in all but two (Yokadouma and Garoua Boulai) of the mining districts. The Kako ethnic group (30%) are mostly concentrated in the Batouri and Yokadouma districts while miners of the Hausa/Fulani ethnic group are concentrated in the Garoua-Boulai district. Of all the 389 miners interviewed, only 0.7% (all in the Batouri) district are non-Cameroonian coming from Ghana and the Central African Republic. Less than 3% of the miners migrated from other regions of Cameroon to this region to undertake ASM. Of all the miners interviewed, over 74% of miners identified themselves as indigenes, suggesting that there is a relatively low rate of movement of mine workers from district to district. The geographical association of specific ethnic groups around particular mining districts would suggest that the activity is not migratory or short term, as has been reported in other mining communities such as many of those located in West African where mining has stimulated significant urban-rural migration, particularly the movement of groups of 'skilled' and 'semi-skilled' individuals (Yakovleva, 2007).

5.3.3.2 Age, gender and household structure

This study was undertaken at household and community levels. The ages of all miners interviewed in all the mining districts range from 14-66 years and have been presented in Table 5.6. The average age of the 389 miners is 26, inferring a young workforce involved in the activity. Both the youngest and oldest miners come from the Batouri area. Statistical analyses (one way ANOVA) undertaken showed that there is no significant age variation ($p < 0.005$) among the miners in all 24 communities studied.

The age range of the male miners is 14-66 years against 15-55 years for women. These variations show there is no significant relationship ($p < 0.005$) between age and gender, suggesting that ASM in the region is not gender biased and includes a mix of children, women and men in the production chain.

Table 5.6. Age range of the artisanal miners in the mining districts surveyed

	Boden-Colomine	Betare - Oya	Batouri	Yokadouma	Garoua-Boulai	Kette
Min	17	16	14	15	16	15
Geometric mean	27	31	27	26	23	24
Median	26	29	25	25	22	21
Std Dev	8	14	13	9	7	10
Max	46	61	66	50	57	61
Range	29	45	52	35	41	46

Source: Author's fieldwork, 2012/2013

Of the 389 miners interviewed, over 76% of the adult male miners are married. Of these married miners, approximately 82% have one wife and 15% have two or more wives. The size of each household is a function of age and the numbers of wives, hence polygamous households tend to be larger than monogamous settings.

The miners mostly operate in family units, although a good number of them work either for *chefs de chantier* or hire labourers themselves. The family units are cohesive and extended family settings are a common feature. Anecdotal evidence and participant observation during the study suggest the traditional age for men to get married is 21 and women 16, and this resonates with the responses from the miners. Each family unit is headed by a man. Exposure to western civilization (through television, blockbuster films, radio and the internet) and the challenges of constructing livelihoods were stated during the focus group meetings as reasons why the miners do not opt for large families. This is reflected in the proportion of miners who still practise polygamy (7.9%) and the number of children (average of 3 and standard deviation of 2.55 per miner). 67% of the respondents have 3 children or fewer, however, some of the older miners with 2 or more wives have between 6 and 10 children.

The number of children, their gender and age have a bearing on ASM, as this study suggest. Additionally, the people in this region, as in other regions of the country, recognise extended family members such as in-laws, cousins, nephews, and nieces etc. as part of their dependents. This element of the miners' culture reflects in the number of dependents each miner has. Correlating this with the number of children, it was observed that some children become miners in their own right from the age of 14, and as a result, are not classed as dependents.

A good understanding of how men and women are differentially involved in, and affected by, ASM and the factors surrounding their engagement in the activity could be an effective way in which projects and policies could be thought through and put in place. This will ensure that men and women have equitable opportunities for participation at all stages of the ASM value chain, as well as access to the benefits of ASM, and that neither men nor women disproportionately bear the risks associated with ASM (World Bank, 2013).

The differential roles performed by men and women in ASM in the study area were explored in the quest to determine access to the resources and opportunities associated with artisanal and small-scale mining. Of the 389 respondents, 35.7% are women. Together with children (under 18), they make up 55% of the total population sampled. Whilst consisting of over 35% of the workforce, women do not own land and other assets in the sector, despite their unrestricted access to land for ASM. The role and perception of women in ASM is deeply rooted in the traditional and cultural values in the mining area. Women and children perform specific tasks such as transporting gold-bearing aggregates and panning. The myth that a woman in a pit will bring bad luck is waning. During the field studies, it was evident that women now access the pits to transport the ore to the grinding/pounding and panning areas. That notwithstanding, women are more involved in other roles in the downstream sector where they engage in the brewing of alcoholic beverages, operation of bars and restaurants, provision stores and in providing services such as mobile internet and telephone airtime credits. There is also evidence of a 'flourishing' sex industry in all six districts.

Women in ASM communities have varying degrees of financial autonomy. Contrary to the long established tradition where women are defined as their husbands' property including their earnings, most female miners in the East Region retain their earnings from ASM. However, there were some exceptions in a number of instances in Garoua-Boulai where some women stated that they offer a proportion of their earnings to their husbands every September to help with school needs of their dependents at the start of the school year. Whilst women participate in most ASM activities in all six districts,

ownership, access to and control of land remains a male dominated affair. Although there is inequality along gender lines as evidenced in the ASM communities in the region, it is a long-standing cultural issue in other sectors such as smallholder farming, and needs to be better understood. However, the focus of my research is how both men and women construct their livelihoods from ASM. As such, I argue that issues such as recognition, formalisation and support need to be prioritised ahead of issues of gender inequalities (Moser *et al.*, 2001) in a sector that is poorly understood by national authorities and donor agencies. This is because ASM in the region is tied into normative understandings of gender, family, home and nation, a moral construct in which boys and girls are put in their places.

The involvement of children in ASM in East Cameroon reflects the general perception and involvement of children in farm and non-farm activities in the country, where there is a very strong bond between girls and their mothers on one hand and boys and their fathers on the other hand. This is perceived by most stakeholders, including the authorities, as good and moral. In most of the camps, children work as part of a family, although some teenage boys are contracted as cheap labour. There are no official statistics on the number of school-aged children who attend school regularly. As shown in Table 5.5 above, the presence of children in mining camps and participation in ASM is a common occurrence in the East Region. Some studies in sub-Saharan Africa (e.g. Mali [Hilson, 2012], where child labour in ASM communities is attributed to a combination of cultural issues, household poverty and rural livelihood diversification) reaffirms findings of this study.

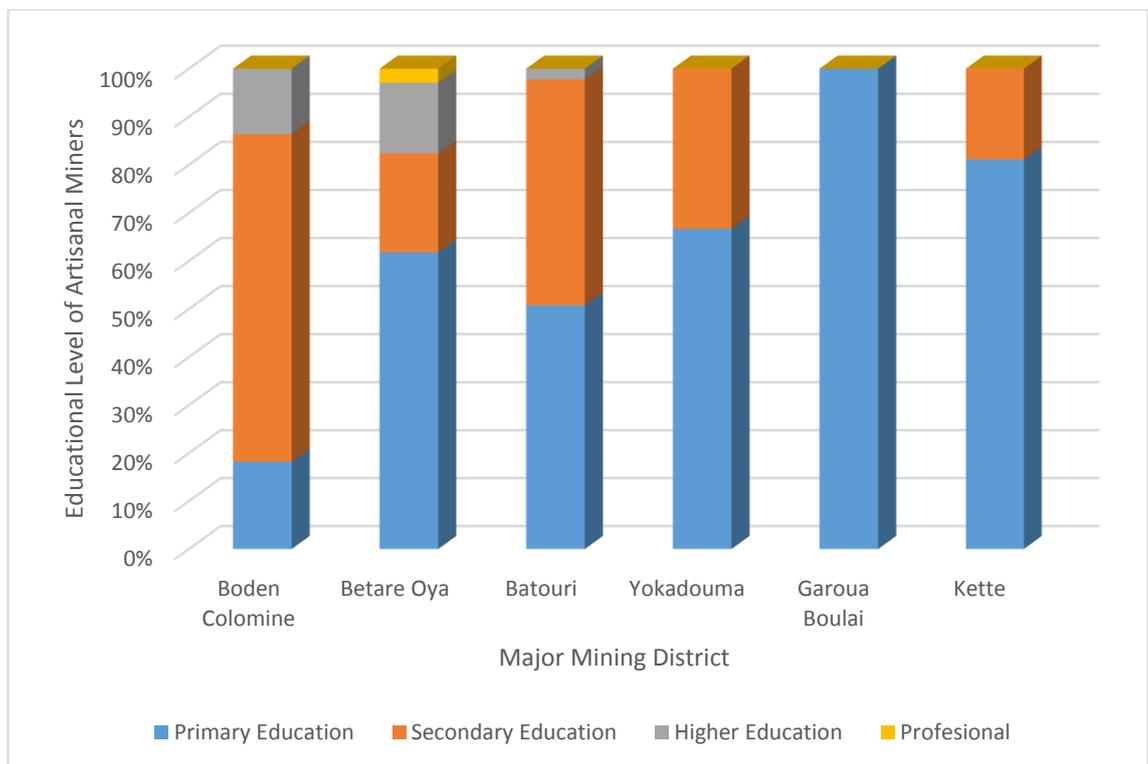
5.3.3.3 Educational background

The educational levels of artisanal miners, their skills and qualifications give a useful indication of the type of people who operate in the sector. A typical ASM camp would contain an array of workers with different skills and educational backgrounds – reminiscent of poverty-stricken parts of sub-Saharan Africa, where many people have been made expendable under structural adjustment and reform: unable to find viable replacement employment, retrenched civil servants, teachers and redundant large-scale

mine workers have migrated to rural areas in search of employment (Hilson and Potter, 2005; Banchirigah, 2006 and Tschakert, 2009).

In the case of the East Region, the results obtained during the survey (Figure 5.9) show that the majority (67%) of miners interviewed had limited formal education (primary school level).

Figure 5.9. Educational levels of the artisanal miners surveyed



Source: Author's fieldwork, 2013

All of the miners interviewed in the Garoua-Boulai mining district had only basic primary education. Within the data, only 3% of respondents (all in the Betare-Oya district) were professionals. In Cameroon, primary education is compulsory; the results obtained from this study, therefore, would suggest that the majority of artisanal miners in the East Region tend to stop formal education to concentrate on ASM. The fact that the miners in this region are predominantly primary school leavers (67% in Figure 5.9) with very little or no knowledge of key aspects of the geology of their claims and the legal requirements of ASM under Cameroonian law does not reflect or resonate with the widely reported dynamics of ASM in other parts of the African sub-continent.

5.3.3.4 Motivation and needs of ASM workers

Many studies on ASM have advanced a plethora of reasons why people engage in the activity. These are discussed as pull and push factors in Chapter Two (Section 2.2.3). Whilst these reasons mostly relate to rural livelihood diversification in many stretches across sub-Saharan Africa, it has been dominated by two narratives: one that characterises the sector as being dominated by rogue entrepreneurs wanting to get rich quick (e.g. Nöetstaller, 1987) and another that describes ASM as an activity that is largely poverty-driven (e.g. Hilson, 2009). Hilson and Garforth (2013) posit that such narratives only apply to specific sets of circumstances, and that they fail to fully capture why farm families have turned to the non-farm economy for incomes. In this sub-section, I build on Hilson and Garforth's argument by illuminating the factors that motivate rural inhabitants in the East Region of Cameroon to engage in ASM.

The most common motivation that resonates across the area is the ease with which people could become miners. This was evidenced when a teenage miner in Dem stated that:

"I can tell you that all you need to become a miner in this area is your physical strength as well as being a member of the community. You do not need any capital. It is not a provision store where capital is required. Some people are lucky and stumble on gold within a few hours of working in a pit, and with that money, they can acquire other tools needed to work in the pits. In Dem and Mongonam, chef de chantiers usually offer people without tools whatever they need to work in the pits, especially young boys who are new to mining or some of these motorcycle riders to come here to make extra money for their "tortines". So in terms of start-up or investment, we really do not need that".

Table 5.7 below outlines the main reasons why inhabitants in the East Region engage in ASM. 42.2% of the respondents indicate that they were born into mining families, while 12% consider ASM to be a livelihood opportunity. Over 29% of respondents see ASM as a means of diversifying their livelihoods and 12.6% due to poverty. Only 4.1% engage in ASM because they want to get rich quickly. From these figures, over 50% of the

interviewees believe ASM is a livelihood of choice – an activity that has simply become part of community life for decades.

Table 5.7. Small scale miner motivations for engaging in ASM activities in the Eastern Region

Motivating factor	Frequency (across all mining districts)	Relative percentage
Born to a mining family	164	42.2
Livelihood opportunity	46	11.8
Livelihood diversification	114	29.3
Get rich quick	16	4.1
Poverty	49	12.6
Total	389	100.0

Source: Author's fieldwork, 2013

Some of the reasons why the people in the areas studied engage in ASM are summarised in the following statements by the miners themselves:

Ismail, an 18 year old miner in Kambele I stated that:

“Both of my parents are miners and I started going to the pit when I was six years old. And from the age of ten, I started mining for myself. There were also days I offer my services as a labourer if I needed instant cash. And as I grew up, I realised that all the big and strong boys were all going to the pits. Girls would even laugh at any boy who wasn't a miner. There were some chef de chantiers who were nineteen years of age, and in this area, they were the ones calling the shot in terms of girlfriends, influence and respect. So mining is to this community as farming and hunting are to other communities. And at 18, I have acquired sufficient skills and knowledge of the activity which really helps me make on the average 5million francs per month. Now tell me, what sort of job can one do in this country to earn that type of money? Even Gendarmes and Police officers who collect bribes by the road side would take several months to raise 5million francs. So if I were to leave the pits for any other job, it must be something that gives me a minimum of 1.5million francs CFA and without any stress”.

The needs of ASM operatives in the study area were captured through the focus group meetings and through specific questions that sought to gain understanding of miners' needs, how the miners themselves prioritised these needs as well as the proportion of

their incomes spent in meeting these needs. The miners ranked their needs in the order shown in

Table 5.8.

Table 5.8. ASM Miners needs in order of preference

ASM miners needs	Rank
Modern equipment	1
Improved technology	2
Medicines and healthcare	3
Hired labour	4
Modern housing	5
Educational needs for children	6
Drinking water	7
Food	8
Geological information	9
ASM licences	10

Source: Author's fieldwork, 2013

5.4 ASM production, revenue and taxation issues

5.4.1.1.1 ASM gold production

A detailed discussion of revenue is presented in Chapter Eight. This section presents the gold production data (in grammes) in each of the mining districts as shown in Table 5.9. On average, the highest proportion of gold is produced in the Batouri and Betare-Oya mining districts. With mean monthly production of 43.38g (Batouri) and 42.05g (Betare-Oya) per miner, these extraction rates if extrapolated to yearly production, would yield an annual production figure of about 519g per miner in these areas. With a market value of US\$40 per gram at the time of this study, the average miner in these two districts could earn about US\$20,760 per annum. This, as argued by Hentschel *et al.* (2002), is equivalent to extra foreign exchange and can be considered as a net contribution to foreign exchange earnings. This lay parallel to the widely conceived notion that ASM productivity is low and those engaged in the activity operate on marginal deposits (Mobbs, 1998, Davis, 1996 and Geenen, 2012). So far, this is not unsurprising in Cameroon because large-scale mining operations that would typically force the artisanal and small-scale miners towards marginal deposits are presently absent as opposed to other areas of the world where this might not be the case. This situation, however, is unlikely to last much longer as the mining sector in the country matures, with LSM set

to become a force of change in the region, the likely outcome of which is discussed in Chapter Nine (Section 9.3.2).

Table 5.9. Monthly gold production (in g) estimates per mining district in the East Region of Cameroon

	Boden-Colomine	Betare-Oya	Batouri	Yokadouma	Garoua-Boulai	Kette
Min	10	10	5	10	10	10
Mean	37.73	43.38	42.05	22.38	30.58	28.83
Median	37.50	40.00	30.00	15.00	25.00	20.00
Std Dev	24.24	28.99	34.60	19.73	22.92	24.74
Max	90	100	125	100	120	115

Source: Author's fieldwork, 2012/2013

There is a significant correlation between gender and miners' income, specifically as male miners earn significantly more from their work per month. Male miners reported average monthly earnings of between 200,000 and 2,500,000 FCFA (US\$400-5000) compared to women, whose monthly earnings are in the range of 100,000–1,600,000 FCFA (US\$200–3200). The disparity in earnings between male and female miners is explained by their differential roles, access, ownership and control over assets required for ASM. It is argued that ownership, access and control of assets are the primary means through which both women and men develop pathways out of poverty (Moser *et al.*, 2001). Intervention and support schemes in the sector would therefore require focus on gender inequalities.

All of the miners interviewed undertake ASM in conjunction with a supplementary activity, the most common being farming. This finding corroborates findings in several case-studies across sub-Saharan Africa (see Chapter Two, Section 2.2.7) where an emerging body of literature illuminates patterns of livelihood diversification in ASM communities across the region. This study suggests that smallholder farming is complementary to ASM. The growing importance of ASM in the region does not suggest that de-agrarianisation is taking place but reaffirms other studies of rural livelihood diversification such as Ghana (Hilson and Garforth, 2012; Hilson and Garforth, 2013).

Whereas LSM firms repatriate the majority of revenue generated to their foreign-based headquarters, revenues generated by ASM are retained within the host country (CDS,

2004). CFC (2008 p.24) reports that despite the potential for ASM to contribute to the national treasury, taxation on ASM products is often informal or illegal, capricious, highly changeable and rarely recorded. In the case of the East Region of Cameroon, only 2.8% of ASM operatives pay taxes for their operations. ASM taxes are paid to the local councils where ASM operations take place, and are calculated as a proportion of the profits made by CAPAM. These taxes can only be paid by licensed ASM workers, making the entire tax regime flawed due to the level of informality of the operations. The numerous tax regimes on ASM in other countries such as the Democratic Republic of Congo (Tegera and Johnson, 2007), Zambia (Lungu and Shikwe, 2007), Sierra Leone and Guinea (DFD, 2006) are absent in Cameroon. ASM operators therefore do not experience the burden of taxation as in these case studies.

5.5 Marketing and ASM value chain

It is unclear who the major players in the ASM value chain in the study area are. There is no evidence of sponsors pre-financing ASM or indeed any activity in the value chain. This study reveals that the purchase of gold is dominated by clandestine buyers who account for 63.2% of the market. Jewellers from surrounding towns, Douala and Yaoundé purchase 22.4% while the Government body – CAPAM purchases the remaining 14.1%. The origin of these buyers is also unclear as 81.2% of them are based locally. Most of the buyers operate provision stores to conceal their involvement in the gold trade and as a means of evading taxes. However, 5.4% of buyers come from Yaoundé and Douala while 13.4% are based abroad.

A common feature of ASM is the establishment of relationships between miners and their immediate buyers (CFC, 2008). Middlemen (known as sponsors or *negociants*) provide finances for artisanal miners to cover costs associated with mining such as equipment, site access fees, food, security, transportation and licencing fees. In return, such traders expect to enjoy some form of monopoly of purchase. In some cases, interest is paid on these loans. Such exploitative and illegal relationships often lead to the accrual of debts by the ASM operator – hence the view that ASM perpetuates poverty. This view was tested by specific questions which were used to establish if there

were any relationships between miners and buyers. 46.8% of the respondents stated that they do not have any relationship with buyers while 53.2% stated that they did. It was further established that such relationships only existed between the miners and CAPAM/Jewellers.

In the case of CAPAM, it only provides support to artisanal miners who sign up to sell their minerals to the organisation. Thus, this study reveals the absence of such exploitative relationships, which, in a number of studies (e.g. UNEP, 2013), has been blamed for both perpetuating poverty and causing ASM workers to be trapped in poverty. Although the official prices of ASM-produced minerals are set by CAPAM, pricing is ineffective as the latter accounts for a very small proportion of the market. Prices are negotiated between the ASM Unions and buyers, and in some cases, between individual buyers and miners. This puts the miners in a position of strength as they are seldom exploited as is the case in other parts of the world. Over 84% of the miners negotiate prices for their minerals. They are also confident that they have the option to source the best prices for their minerals.

Due to the widespread ownership of assets such as personal computers and smartphones, and with increasing access to the internet, the miners access market information on a daily basis. They also communicate world market prices using these devices with their colleagues and with their union members. By so doing, they avoid being cheated, as is the case with ASM workers in other parts of sub-Saharan Africa. They also succeed in doing so by virtue of the fact that the market, though informal, is liberalised, and enables the miners to be able to seek the best buyers for their minerals as demonstrated in the following responses:

Jean, a miner in Kette stated:

“I had an agreement with CAPAM to sell gold to them to pay off a water pump we took from them, and that is the only agreement I have ever had. The relationship was a dubious one because CAPAM knew we couldn’t get these types of pumps anywhere in the region, so they took advantage of the situation to cheat us by buying gold for 15,000 francs per gram while others were paying 20,000 francs per gram. When we

started this pit, we needed high capacity water pumps and there was none available here. It was only CAPAM whom we later got to know acquired the pumps from China. They wouldn't sell the pumps to us. They insisted on giving us in return for 500,000 francs worth of gold at a rate of 15,000 francs per gram which we find very exploitative. After paying off the water pumps, I stopped selling to them. In this area, we just sell our gold to whoever offers the best prices”.

Similarly, Antoinette from Colomine said that:

“We do not have any agreement with anyone. It is not a good idea to have an agreement with a buyer because that is when you get cheated. I heard a few miners collected water pumps from CAPAM on loan and as a result, were forced to sell their minerals to CAPAM for 15,000 francs per gram while others were selling theirs to clandestine buyers for 20,000 francs. I think this is theft on the part of the government, so why would you have a relationship or agreement with such a body? There are times some buyers visit continuously for long periods, during which we become familiar with one another but this is far from being in a relationship because we are talking about gold and money. Being in a relationship or in agreement means giving these people the opportunity to cheat you and we don't want that to happen to us”.

5.6 ASM licensing, interface with LSM and government support

Unlicensed ASM operations are widespread in many countries in the developing world (Hilson and Potter, 2005). In the case of sub-Saharan Africa, the increasing level of informality and the negative impacts of the sector have dominated debates in donor and policymaking circles (Hilson, 2003; Hilson, 2002; Banchirigah, 2008); Hilson and Potter, 2005). In many countries in sub-Saharan Africa, ASM is illegal and other activities in the value chain such as purchasing and exporting products from ASM is considered smuggling (Teschner, 2012). In a growing number of states, there have been attempts made to recognise and bring ASM operations into the formal sector (Mobbs, 1998; Hilson and Potter, 2005). Informality, operating without an applicable or appropriate legal framework, was once considered synonymous with subsistence activities that offer

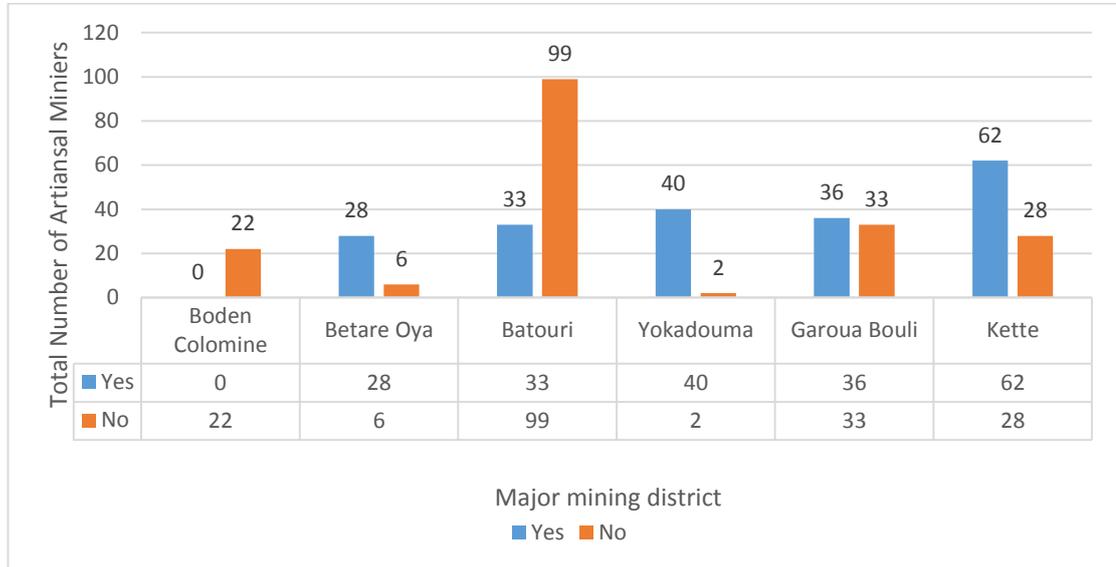
no real opportunity for economic development but more recently, such interpretations have become more nuanced (Buxton, 2013). As illuminated in Chapter Two (Section 2.3.3), this form of informality is largely due to weak institutional structures of their absence all together. Furthermore, informality can represent innovation and dynamism, and can offer poor producers an accessible route into economic activity (Hart, 2006). In Cameroon, the government established CAPAM (Government Support Scheme for Artisanal and Small-Scale Mining) as a vehicle to help formalise the sector. This study reveals that the Government of Cameroon (GoC) actively encourages small-scale mining as a livelihood choice.

The majority of the 389 artisanal miners interviewed in the six mining districts (86%) reported that they have not had any encounter with, and are unaware of, large-scale mining operations in their communities. Of those miners who reported being aware, only 9.2% of respondents (in the Batouri and Yokadouma districts) had indicated having direct contact with operations and where there was such contact, it was reported that they were permitted to work alongside projects, which were generally prospecting and undertaking exploration. This is probably due to the fact that these large-scale projects are still at the preliminary stages of operation, and have yet to start protecting areas within the boundaries of their permits. It is considered likely that such mutual co-existence could be short-lived, as has been reported in other countries in sub-Saharan Africa (Hilson, 2002).

The implementation of ASM regulations requires significant investment in, and support for, government capacity within the sector (CFC, 2008). In relation to the type of support artisanal miners receive from the Government of Cameroon or any other stakeholders acting on its behalf, over half (51%) of the respondents confirmed that they received some type of assistance. With the exception of the Boden-Colomine and Batouri districts, 51 to 95% of all respondents in the other mining districts reported having received government support, the highest proportion (95%) recorded in the Yokadouma area. The form of assistance to artisanal miners from the government ranges from the provision of equipment (15%) to assistance to obtain an artisanal mining licence (36%). A CAPAM official in Betare-Oya stated that the organisation's sole objectives are to

ascertain the number of workers involved in the sector, and to channel the minerals produced from the informal to formal circuit.

Figure 5.10: Government support for ASM in the East Region



Source: Author's fieldwork, 2012/ 2013

The Government of Cameroon's involvement in the ASM sector is through the Divisional Delegations and CAPAM. The former is responsible for licensing while the latter is the government's main buying agent. From observations made and views from the focus group discussions, there is little evidence of coordination between these two government bodies – where their remits are either undocumented or non-existent. In relation to policy formation, implementation and monitoring, this is not unusual in Cameroon as has been documented elsewhere in relation to waste management (Manga *et al.*, 2008), land contamination and environmental degradation (Forton *et al.*, 2012). With the authorities demonstrating such naivety and incompetence, every resident in the gold-rich East Region in the country can become an ASM worker as and when they choose to do so. Based on the site observations and discussions with the stakeholders, the regulatory process and regime is flawed by vicious regulators turned illegal dealers. The lack of knowledge of ASM hotspots in the heart of the forest in the region makes it impossible to collect basic ASM data for the government and to regulate effectively. Even where CAPAM officials manage to visit these camps (most of which are in enclaves and become inaccessible during the raining season), such encounters are dominated by their desire to arrange supplies to other buyers and jewellers in Yaoundé,

Doula and abroad, not to take stock of the number of miners involved, their working conditions, their needs, or the help they need in applying for licences.

The primary purpose of CAPAM is to encourage ASM in an area where there are conflicting interests, including conservation, alternative rural livelihoods and large-scale mining concessions (Ingram *et al.*, 2011). While CAPAM is providing support to some miners, the lack of a coordinated approach within a wider sustainability agenda is likely to be unsuccessful in the medium to long-term. This has been discussed in Chapter Seven.

5.7 Environmental and social issues

Environmental Impacts including mercury, cyanide, heavy metals, noise and dust emissions have been the focal point of several policy debates on ASM (Geenen, 2012). In the East Region, the miners do not consider health and safety measures in their operations: they do not use any protective gear, and are thus exposed to the unintended risks of noise and dust pollution. Anecdotal and visual evidence collected during the study shows that accidents in the form of trips and falls are frequent in the mining sites.

Several abandoned pits fill with rain water and become breeding grounds for malarial mosquitoes during the raining season. In the forested parts of the regions such as areas around Batouri and Yokadouma, these flooded ponds have become death traps for animals. In some camps, flooded pits are dewatered directly into watercourses, causing silt pollution. Based on anecdotal evidence, additional environmental hazards include deaths associated with unstable underground tunnels and deep narrow pits.

In all 24 communities visited during this study, there was not a single instance where mercury is used. This initially raised suspicion from the author, but it was later discovered that the miners sell their produce in an unrefined form and would corroborate the data from the miners that mercury use in the region is virtually absent. This represents a major difference from most other ASM areas.

5.8 Conclusion

Although ASM is the subject of increasing scholarly interest, Cameroon has received very little or no attention in these studies. This study provides the first detailed analysis of aspects of ASM operations in the country. The objectives of this chapter were to provide an in-depth analysis of the ASM sector in the East Region of Cameroon and to generate baseline data that could inform policy and regulation in the sector. The scale and extent of ASM in Cameroon have been grossly underestimated in a number of national studies and World Bank funded projects. This study reveals that there are over 53,000 people directly employed in the ASM sector in the East Region alone. The activity is significant both in size and composition, and could be a major contributor to rural economic growth if appropriately harnessed and mainstreamed in sustainable development and poverty alleviation strategies. Gold is the principal mineral mined across all six districts in the region, although some operatives mine for diamond in the Yokadouma district.

The activity involves men, women and children in a complex, but organised labour structure with powerful ASM unions. The population involved in the sector is largely local, coming from the Kako, Baya and Hausa/Fulani ethnic groups.

Figure 5.11. Environmental Impacts of ASM



Deforestation in Dem



Dust pollution in Mongonam



Stream siltation in Mbitazara



Abandoned pit in Mongonam: a breeding ground for malarial mosquitoes



Silt Pollution in Kette



Land degradation in Betare-Oya

Source: Author's fieldwork, 2013

There is currently no evidence of migration from other regions of Cameroon or Africa to this region for the purpose of ASM. The majority of the miners are young, with several years' experience, suggesting that they were born to mining families. The absence of LSM operations in most of the region allows ASM workers to extract minerals directly from primary deposits. Production rates and income levels are high compared to other ASM regions in sub-Saharan Africa. There are no restrictions to entry and land for ASM is readily available throughout the region. Most of the miners are also involved in smallholder agriculture and there is no evidence of farmers 'branching out' into ASM. The study also reveals that ASM in the region is not poverty-driven. The level of informality is high as it is not yet illegal to engage in ASM without a licence. The government actively encourages ASM and provides some form of support as a means of channelling ASM minerals through a formal circuit. Despite such an approach, the study did not evidence any form of 'rush' into ASM. As such, the dynamics associated with of the ASM economy in this region, though basic, are distinct and suggest that we need to exercise greater caution in characterising this sector in the West African context.

In the next chapter, governance structures, identities, and power dynamics in the mining sector in Cameroon are discussed. Data from interviews with local chiefs, ASM union leaders, government institutions, NGOs and secondary sources are presented, in view of delving into the interplay between policy, governance and mining. Analysis of the factors that influence access to mining in the country is undertaken, with a particular focus on power, politics, and policy.

6 Chapter Six - Resource governance and the politics of identity in the mining sector in Cameroon

6.1 Introduction

This chapter interrogates the relations between land tenure and governance in the mining sector of the country. Data pertaining to this chapter were obtained from interviews with artisanal miners, local chiefs, ASM union leaders, government departments, NGOs, focus groups and from secondary sources. The chapter delves into the interplay between policy, governance and mining. Analysis of the factors that influence access to, and use of, land for ASM is illuminated with particular focus on governance, ethnicity and social exclusion from the ASM economy.

Arranged in four main sections, the chapter initially presents the relationships between land rights, access, use, and control. Thereafter, the mining sector of Cameroon is presented in view of illuminating the evolution of policy, mining laws and licensing regimes, as well as CAPAM's regulatory capacity. In the third section, the governance structures of LSM and ASM are presented as the governable spaces shaped by the dynamics and power relations between formal and informal forms of mining related activities. Finally, ethnicity, identity and their interplay with access to land and exclusion from ASM are presented.

6.2 Land tenure and access issues in Cameroon

Land rights and access discussed in Chapters Two and Three reinforce the view by Adams *et al.* (1999) of the need to protect people's property rights to occupy a homestead, use land for annual and perennial crops, make permanent improvements, bury the dead and have access for gathering fuel, poles, wild fruits, thatching grass and minerals. It also includes rights to transact, give, mortgage, lease, rent and bequeath areas of exclusive rights, and exclude others from the above-listed rights at community and / or individual levels. Furthermore, land rights may include rights to enforcement of legal and administrative provisions in order to protect the rights holder (Adams *et al.*, 1999). The

following sub-section presents the relationships between rights, access, control and use on one hand and ASM on the other uses.

6.2.1 Land and property rights in ASM communities in the East Region

The provisions within the land and mining statutes are summarised in Appendices I, II and III. Despite the expropriation powers of the Cameroonian state in these statutes, this study, as shown in **Error! Reference source not found.** reveals that property rights in the region are predominantly customary.

Table 6.1: Land ownership categories amongst ASM operatives

Mining district	The holdings	The commons		Not known
		Controlled access	Open access	
Boden-Colomine	0	14	8	0
Betare-Oya	5	22	5	2
Batouri	47	68	16	1
Yokadouma	0	21	21	0
Garoua-Boulai	16	14	34	5
Kette	28	25	37	0
Total	96	164	121	8

Source: Author's fieldwork, 2012/2013

The two forms of land rights identified in the study area are: the holdings and the commons. Only about 25% of the miners hold exclusive rights (holdings) over land on which they undertake ASM, farming, residential or other business activities. By contrast, over 73% of ASM operatives in the six mining districts exercise either controlled access (areas classified as community land) or open access (areas classified as government land). Furthermore, forms of land acquisition (**Error! Reference source not found.**), recognition of property rights (Table 6.3) and awareness of the state's expropriation powers (**Error! Reference source not found.**) were used to determine security of tenure for ASM operations.

Table 6.2: Land acquisition in ASM districts

Mining districts	Purchase	Lease	Inheritance	Association with community
Boden-Colomine	0	0	0	22
Betare-Oya	1	0	4	29
Batouri	7	3	33	89
Yokadouma	0	0	0	42
Garoua-Boulai	1	0	5	63
Kette	0	0	14	76

Total	9	3	56	321
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Source: Author's fieldwork, 2012/2013

Table 6.3: Recognition of property rights in ASM regions

Mining district	Historical and ancestral ties	Land title	Other forms of recognition
Boden-Colomine	21	0	1
Betare-Oya	22	0	12
Batouri	102	0	30
Yokadouma	14	0	28
Garoua-Boulai	25	3	41
Kette	58	0	32
Total	242	3	144

Source: Author's fieldwork, 2012/2013

Table 6.4: Awareness of government expropriation powers in ASM regions

Mining district	Yes	No
Boden-Colomine	0	22
Betare-Oya	0	34
Batouri	3	129
Yokadouma	24	18
Garoua-Boulai	0	69
Kette	0	90
Total	27	362

Source: Author's fieldwork, 2012/2013

Fewer than 18% of respondents acquired land for ASM through purchase, lease or inheritance. Most of the miners (over 82%) gain controlled or open access to land for ASM through their membership in, relationships or association with their communities. The recognition of property rights in the districts is closely linked to historical and ancestral rights (over 62%) and other forms of recognition such as association with communities (37%). Less than 1% of land used for ASM in the entire region is titled. Similarly, only about 17% of respondents are aware of the state's powers to expropriate any land in the region, including those on which they undertake their activities.

Property rights over land directly affect livelihoods, and represent a large proportion of people's wealth, and in developed countries, they account for a significant proportion of families' assets (De Soto, 1996). In developing countries, it is believed that over 70% of family assets consist of land. Outside of a well-functioning communal system, titling land is the only legal form of ensuring security of tenure. In Peru, about 90% of rural land is not protected by formalised titles, that is, they are informal (De Soto, 1996). In

mining communities in the East Region of Cameroon which is largely rural, this study reveals the proportion of informal land holdings is over 99%. While these statistics could be outdated (in the case of Peru) or localised (Cameroon), they are an indication of widespread informal holdings in developing countries such as Cameroon that governments and policy makers have yet to grasp. There are several arguments from different authors linking this occurrence to neoliberal land reforms across South America, Southeast Asia and sub-Saharan Africa.

6.2.2 Enforcement of land and property rights in Cameroon

Since their enactment, the various shortcomings of the Land Ordinances have been highlighted in literature (e.g. Anyangwe, 1984; Ngwasiri, 1984 and Nsoh, 2013). The common feature here is the division of land into three broad categories, private property, public property and national lands. Private property now covers only land for which a land certificate has been issued (Articles 2, 3 and 4 of the 1974 Land Ordinance) while public property consists of all personal and real property which, by their very nature (e.g. coastlands; waterways; sub-soil and air space) or intended purpose (e.g. easements), is set aside either for the direct use of the public or for public services.

Land that has not been registered as private or public property reverts to the common pool of national lands and this includes land still held by virtue of a customary tenure (see Chapter Three, section 3.9). For the purposes of this research, lands held by customary tenure are of particular importance to ownership rights (Ngwasiri, 1984) but not necessarily other rights (such as the rights to harvest timber products from such lands). However, a vast majority of Cameroonians have continued to occupy and use land as though customary ownership rights still exist and, as will be seen below, subsequent legislation is still drafted on the basis that such ownership does still exist.

The implication of the above argument is that customary owners are still holding land under the customary land tenure system (Anyangwe, 1984). This is significant because, although a land certificate is what now confers ownership, it has also been held that this is not the only possible proof of ownership. It could also be argued that although a land certificate is the only objective proof of ownership, it is not the only basis of ownership

since customary holding is one way of acquiring a certificate, implying that customary ownership rights are still recognised. The continuous occupation or use of land, which has been absorbed into the category of national land, grants customary communities and individuals a legal right to own the land. It is therefore fair to say that this right should be recognised in all legislation dealing with land ownership regardless of whether or not a land certificate exists. This is not, however, the case, as for the purposes of expropriation and compensation, customary lands are treated as national lands and not as a distinct category of lands entitled to appropriate compensation. This uncertainty derives from inappropriate legislation and not actual practice on the whole, and as a result, no conflicts have emerged from this which is a very important difference from many other situations.

6.2.3 Implications for the informal ASM

Cousins (1997) argues that for land tenure to address rural poverty and secure sustainable rural livelihoods, it must be phased to address political, economic, social, cultural and legal issues (Cousins, 1997). Inspired by Cousins' work, this research reveals key issues about tenure that have shaped the dynamics of ASM in the East Region, and thus address moreover rural poverty and sustainable rural livelihoods.

The administration of land tenure in East Cameroon is ineffective in the entire region and at community levels. Although the political conditions in the country don't favour effective administration, common property is widely used by ASM communities for mining, smallholder farming, grazing and fruit picking. There is also no evidence suggesting that land ownership in the region affects ASM production, or smallholder farming. However, the lack of clarity about property rights seems to be a disincentive to mechanised small-scale mining.

From a socio-cultural perspective, access to the commons in the region is closely linked to identity through indigeneity and ethnicity all being a by-product of colonial and post-colonial reforms. Land is also often part of people's identity (Lund and Boone, 2013). This will be illuminated further in Section 6.4 of this chapter.

From a legal point of view, common property (where over 99% of ASM activities currently take place in the region) has no legal standing as there is no titling or registration programme for common property in the country.

Given the dual land tenure systems operating concurrently in the country, the state has limited capacity to enforce the land ordinances. Further reform to these statutes within sustainable livelihood strategies would be costly. However, one issue remains: how would ASM communities vulnerable to such flaws in the law be affected? What impending shocks would these communities face in the light of the current divestiture of state lands to national and foreign multinational mining companies? Based on empirical evidence, and building on Migot *et al.* (1994) analogy, the current land tenure system in Cameroon underestimates the importance of the customary land tenure systems, which are an integral part of the social, political and economic framework. This is not seen as a deliberate move, but a combination of inertia, confusion and lack of technical and administrative capacity on the part of the GoC. They overlook the unintended effects of undermining land tenure systems, which protect poor and vulnerable members. They also tend to show poor understanding of the empirical evidence that traditional tenure systems can be flexible and responsive to changing economic circumstances. These statutes and the administration of land in the country have potential consequences for the large-scale mining operations and ASM.

6.3 Mining in Cameroon: the evolution of mining policy and licensing

Despite the vast mineral resources in Cameroon, mining has largely been artisanal and small-scale with no adequate regulatory control as shown earlier in Chapter Five. The country's policy and regulation of the sector have evolved over the last 50 years. Mining and associated activities are governed by specific elements of the Mining, Taxation and Environmental statutes. The mineral policy has evolved from the Mining Law number 64-LF-3 of April 6, 1964, and Decree 64-DF-163 of May 26, 1964; the Mining Taxation Code, law 64-LF-13 of November 18, 1968, and the decrees regulating oil companies - law 82-20 of November 26, 1982, and law 95/13 of 1995 (Mobbs, 1998). The 1964 Mining Code was passed during the post-colonial era and was considered to be

nationalistic and investor unfriendly (Tieguhong *et al.*, 2009). As such, until the late 1990s, Foreign Direct Investment (FDI) and the growth of the large-scale mining sector in the country were limited. In order to redress the situation and join in the 'global race' for Foreign Direct Investment through the valorisation of the country's natural resources, the Government of Cameroon (GoC) undertook significant revisions of the Mining Code. This followed the 1972 reunification of East and West Cameroon and the subsequent harmonisation of all statutes of the previous republics.

Relevant sections of Cameroon's 2001 Mining Code with a discussion of some of the salient requirements are detailed in Appendix I. The World Bank-funded Mining Code marked a significant change from the 1964 Mining Code and led to significant interest from foreign multinational companies in the harnessing the country's mineral resources. However, due to the poor record of management and incomplete data archiving at the Ministry of Mines, the number of LSM permits in the country is unknown. There are also difficulties in acquiring information on mining permits from official government sources (Schwartz *et al.*, 2012).

A review of the 2001 code (see Appendix I) and related legislation revealed that there is a lack of coordination with the requirements of other legislation and statutory policy instruments relating to environmental protection, forestry and wildlife conservation, community forestry, and the need for a sustained livelihood for communities who depend directly on land-based resources for a living. This was reaffirmed during the focus group discussions and interviews with some stakeholders. Although there is only one active LSM operation in the country (C&K Diamonds in Mobilong, East Region), there is currently no evidence (as shown in Tables 6.1, 6.2 and 6.3 above) that this is hampering local people's access to and use of land for ASM in this area. It is likely that there will be a significant conundrum for all stakeholders (regulators, mining companies, artisanal miners and the local population), if the current LSM licensing model is allowed to proceed unchallenged. The impacts on the informal economy (smallholder farmers and ASM operators) could follow the lines of other ASM communities in countries such as Peru, Indonesia, Ghana and the Democratic Republic of Congo. On the other hand the impacts of ASM on protected sites, as discussed in the previous chapter, are minimal.

6.3.1 Large-scale mining licensing

The liberalisation of the mining sector through policy reform has led to significant growth in foreign companies acquiring mining concessions in Cameroon, particularly in the East Region. The number of LSM operations in the country has not yet been gazetted but field observations suggest there could be about 55 in the East Region alone. The lack of such repository is partly responsible for the widespread overlap in mining and conservation claims shown in Appendix III.

Articles 57-69 of the 2001 Mining Code provide a legal framework for LSM licensing. The statute requires operations to apply for different permits (prospecting permits, exploration permits and mining permits) depending on the stage of their activity. While a lot of the multinationals are still investing in exploration and research, the award of the several mining concessions to foreign companies without due diligence regarding the stage of mine development has the potential to impact on the political, economic, social and environmental landscape in Cameroon. Cameroon appears to lack the institutional capacity to monitor and enforce the regulations.

Many developing countries have invested time and effort in the last two decades to reform the mining and taxation codes to attract foreign investment in the mining sector (Hilson and Yakovleva, 2007) in order to use this as a major driver of economic development and long term growth. This has also been the case with Cameroon, where the Mining Code was revised in 2001 as part of its 'Operation 2035 – Economic Development'. Whilst the nationalistic post-colonial 1964 Mining Code in Cameroon was revised at least a decade after mining reform had taken place in several countries across Africa, it does not appear that in drafting the 2001 Mining Code, lessons were learnt from other regions (e.g. Tanzania, Liberia and Ghana) where revised mining codes were being implemented. Unlike the 2001 code, the main provisions of this code include: ownership of mining operations by the GoC, use of domestic as opposed to foreign work force and foreign multinational companies having less than 50% stake in all LSM operations in the country. Whilst similar to other mining codes across African countries where the main driver has been to attract FDI through large-scale mining, the potential benefits have been dwarfed by generous provisions in the mining code. Although LSM

will inevitably increase mineral production in the country, it is unlikely to be beneficial to the economy given the generosity of the mining code which allows foreign companies to import all equipment duty free, repatriate their profits without limits and make only limited royalty payments.

As argued by some authors (e.g. Banchirigah, 2006; Hilson and Yakovleva, 2007), this inevitably does not create a level playing field between the large-scale mining activities, to which alone the reform applies, and subsistence artisanal mining, and will help to perpetuate the paradox of the resource curse which has been widely reported in other African or developing countries where mining is a major part of their economies. The 2001 Mining Code therefore communicates the country's resources policy as open, generous to corporations and one that guarantees returns to international investors.

There is acknowledgment, as noted by the author within government circles that the mining code as well as a wide spectrum of legislation related to the management of other natural resources (e.g. land, forests, wildlife and waterways) may have been enacted at a time when the country was ill-prepared and lacked the capability to deal with such a transformation. Most of these statutes have neither been well formulated nor implemented. For example, responsibility for implementing socially responsible environmental policies in the mining sector are devolved to several ministerial departments and aimed at achieving similar objectives of environmental protection and sustainable rural livelihoods. This leads to inefficiencies through duplication and wastage of both human and capital resources (Manga *et al.*, 2008). Additionally, this results in poor enforcement, poor sensitisation as well as inadequate coordination between the various ministerial departments and stakeholders.

A fundamental flaw in the current mining policy framework is the requirement for a Text of Implementation which in many cases is delayed or non-existent (see Appendix II). Additionally, in some cases where they exist, they are very general and do not offer appropriate technical guidance to ensure a level playing field for all stakeholders, particularly the conflict between artisanal mining, large-scale mining and forestry conservation. This means that monitoring becomes ineffective and subjective in some cases. The lack of coordinated strategies to ensure that the mining of Cameroon's

mineral resources is undertaken in a socially and environmentally responsible manner is ultimately against the ethos of sustainable development and rural livelihood coping strategies.

The Mining Code (Article 42) stipulates that, should LSM permits be granted in an area where there are ASM authorisations, the areas covered by the artisanal mining shall not be part of the wider mining permit. While such stipulations may appear appealing to the rural communities who depend on artisanal mining for their livelihoods, as noted by the author, government representatives at CAPAM and the Ministry of Mines are concerned that it has been, and will continue to be, impossible to implement such provisions due to lack of knowledge of ASM locations and widespread informality of the activity and predicts this to be a source of conflict when LSM operations make the transition from exploration to production.

6.3.2 Artisanal and small-scale mining licensing

The mining policy framework in Cameroon specifically makes the distinction between individual prospectors, artisanal mining and large-scale mining operations. ASM is licensed under articles 37–44 of the mining code as shown in Appendix I. Senior officials in the Ministry of Mines have conceded that the country's strategy for the sector relies solely on potential rents and taxes from LSM operations, and are least concerned about the ASM sector. As has been documented in the literature (e.g. Banchirigah, 2006), donor institutions led reform has traditionally been focused on the large-scale mining sector predominantly consisting of foreign multinationals to the detriment of artisanal mining which in many countries, is dominated by indigenous people.

The provisions to mitigate potential conflicts related to artisanal mining operations (Articles 37–56) and large-scale mining operations (Articles 57-71) in the mining code are seen here as attempts by Cameroon to meet certain prerequisites for World Bank and other donor institutions support to reform the sector and make FDI attractive. The creation of CAPAM in 2003 to regulate the ASM sector could be seen as a step in the right direction. CAPAM's remit is to facilitate, assist and promote artisanal and small-

scale mining (Tieguhong *et al.*, 2009) as a means of alleviating rural poverty and unemployment in resource-rich parts of the country.

While this is commendable, CAPAM's presence in ASM areas is either ad hoc or non-existent. This study reveals that over 75% of ASM operatives are unaware of its existence. In some communities, e.g. Beke and Chantier Mbunduru-Foro in Kette district, CAPAM merely installed post signs in the communities without setting up any offices. The refusal of all government officials in Yaoundé to comment on this situation corroborates the widely held view (e.g. Schwartz *et al.*, 2012) that the government's approach to the sector is flawed and corruption widespread. This is consistent with failures reported in other parts of sub-Saharan Africa, where schemes to implement regulations and support ASM have tended to be ad hoc and ineffective (e.g. Hilson, 2007; Banchirigah, 2008). Without learning lessons from other developing countries, it is likely that such an approach in Cameroon may simply not yield the desired results for the country.

6.3.3 Artisanal and small-scale mining regulation and enforcement in the East Region

As discussed in Chapter Five, the artisanal mining process in Cameroon is largely rudimentary with little mechanisation involved; the activity mostly occurs in areas that are difficult to access by road; some pits are situated in enclaves and in some communities, ASM is the mainstay of rural economies; the number of people involved in the sector is unknown; CAPAM's presence is non-existent in most communities. At national, regional and local levels, there is no register of licensed ASM operatives. The absence of such vital census information makes ASM regulation virtually impossible. The 2001 Mining Code (Articles 109–117 in Appendix I) includes requirements for the implementation of health and safety measures to ensure that all mining activities are undertaken in a safe manner. However, there is currently little evidence to suggest that the legislation has been translated effectively into practice due to the lack of trained personnel and inadequate institutional capacity for enforcement. This in turn would suggest that the mining policy reform is unlikely to yield the desired results of increasing

value from the artisanal mining sector and improving on the sustainable livelihoods of those involved in the sector.

6.3.4 CAPAM – Regulator turned middleman

In Cameroon, CAPAM is the institution with responsibility for supporting and regulating the ASM sector. Its functions, together with those of regulators in two other sub-Saharan countries, are presented in Table 6.5: ASM regulation in three sub-Saharan countries

for comparative purposes, as these countries tend to have the well-recognised ASM economies. While regulators in Tanzania and Ghana control the ASM value chain, including administrative supervision, monitoring, pricing, trading, quality control, environmental management, export and technical support, CAPAM's remit is acutely limited to helping miners obtain licences. It lacks the authority of its sister regulators in Tanzania and Ghana, making it difficult for ASM operatives in Cameroon to be engaged and supported like their counterparts in other parts of the sub-continent.

Only three CAPAM field offices were operational in the six districts at the time of this study (one each in Kambele II, Betare-Oya and Mobilong). Based on field evidence, it could be suggested that there are fewer than 30 CAPAM field officers operating in the entire East Region where over 51,000 ASM workers operate. Only six of these officials were noted from participant observation. Two CAPAM officers interviewed in Betare-Oya in June 2013 said they were poorly trained, poorly equipped, poorly paid, demotivated and lacked capacity to regulate the sector. This ineptitude on the part of CAPAM may be partly responsible for the high level of informality in the sector (about 96%) as only about 14% of ASM workers have either interacted with CAPAM officials or know of its existence.

CAPAM are able to source less than 10% of gold from ASM (pers. Comm. with official at the Ministry of Mines, May, 2013) due to the organisation's inability to cover all ASM communities. It offers less than what clandestine buyers pay for a gram of gold, and in some instances, ASM workers indicated that CAPAM officers buy cheaper from miners and sell to clandestine buyers for a profit that is unaccounted for. This reinforces the

views of McCrohan *et al.* (1991, p.22-23) discussed in Chapter Two, which sees informal activities as characterised by 'off-the-book' and 'under-the table' arrangement.

The regulatory failings of CAPAM make it difficult for the government's mining policy to be translated into practical actions capable of regulating the sector and supporting the region's several thousand ASM workers. ASM in Cameroon remains uncategorised and poorly understood within the official/wider public context. This vacuum is being filled by the artisanal miners themselves, whose village chiefs, traditional councils, ASM unions and vigilante groups have combined to shape an effective 'governable space' that is parallel to the official regulatory system. This dichotomy is discussed in section three of this chapter.

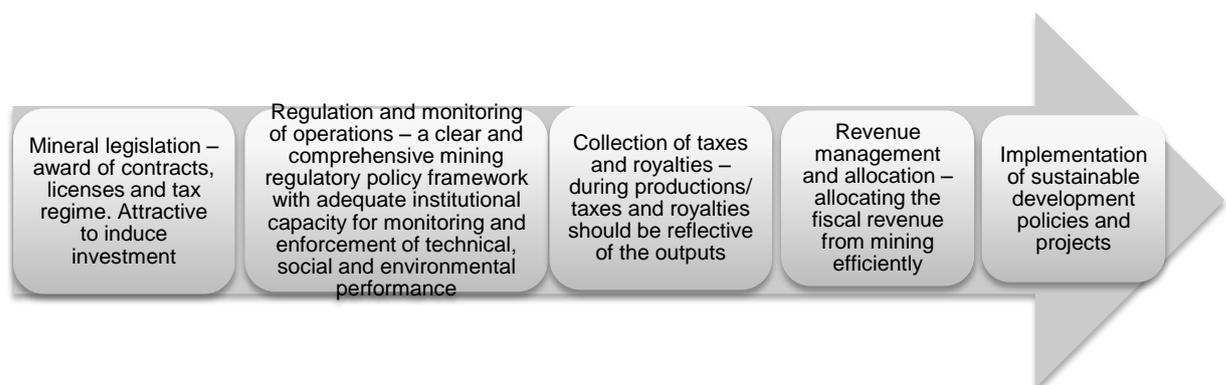
Table 6.5: ASM regulation in three sub-Saharan countries

Country	Tanzania	Ghana	Cameroon
ASM regulator	Tanzania Minerals Audit Agency	Precious Minerals Marketing Company	CAPAM
Responsibilities	<p>Monitors and audits quality and quantity of minerals produced and exported by large, medium and small scale miners;</p> <p>Determines revenue generated to facilitate collection of payable royalty;</p> <p>Audits capital investment and operating expenditure of the large and medium scale mines for tax purposes;</p> <p>Monitors and audit environmental management, environmental budget and expenditure for progressive rehabilitation and mine closure;</p> <p>Collects, analyses, interprets and disseminates minerals production and exports data for projecting government revenue, planning purposes and decision making in the administration of the mining industry;</p> <p>Counteracts minerals smuggling and minerals royalty evasion in collaboration with relevant Government authorities;</p> <p>Assesses values of minerals produced by large, medium and small scale miners to facilitate collection of payable royalty;</p> <p>Advises the Government on all matters relating to the administration of the mineral sector with main focus on monitoring and auditing of mining operations to maximize government revenue;</p> <p>Promote and conducts research and development in the mineral sector that will lead to increased government revenue; and</p> <p>Examines and monitors the implementation of feasibility reports, mining programs and plans, annual mining performance reports, environmental management plans and reports of mining companies.</p>	<p>Grades, values and processes precious minerals;</p> <p>Buys and sells precious minerals;</p> <p>Appoint licensed buyers for the purchase of precious minerals produced by small – scale miners;</p> <p>Promotes the development of precious minerals and the jewellery industry in Ghana;</p> <p>Export gold on behalf of third parties for a commission; and</p> <p>Does all such things as are indicated or conducive to the attainment of its objectives and functions.</p>	<p>Supervision of artisanal mining including assistance to workers to obtain authorisation for artisanal mining;</p> <p>Helping miners create common initiative groups;</p> <p>Buys minerals from ASM operatives on behalf of the GoC.</p>

Sources: Mineral Commissions of Ghana and Tanzania; Ministry of Mines, Cameroon

Appropriate structuring could enhance the mining code’s effectiveness in enhancing mineral resource management, improve mining investment and contribute towards a more sustainable development ethos in the mining sector (Shen *et al.*, 2009). Typically, a properly structured and administered mineral industry has the potential to generate enormous benefits to individual economies as well as those in the sub-region (UNECA, 2004). There is evidence that international donor agencies are increasingly shifting their focus from increasing investment in developing countries to one of sustainable development. In the mining sector, for example, the World Bank has proposed a value chain (see Figure 6.1 below as adapted to the specific case of Cameroon) that highlights the importance of all facets of the mining sector in contributing towards economic development, environmental and social improvement.

Figure 6.1: Promoting sustainable mining reform using the World Bank Value Chain



Source: Adapted from McMahon, 2010

Where appropriate measures are put in place, mining can be an effective vehicle for sustainable development and for long-term economic, social and environmental improvement in the countries where the resources are located. Cameroon is endowed with significant mineral resources and the last decade has seen a major shift in the government’s economic growth strategy with an increasing focus on making mining the central tenet of its growth and development policy. Indeed, mining policy reform in most developing countries has facilitated significant increase in mineral production (Hilson and Yakovleva, 2007) but has also brought with it significant environmental and social

degradation in the affected communities. Balancing the need for economic growth in Cameroon while not affecting the local environment as well as improving environmental quality will require the adoption of holistic approaches to managing natural resources. In relation to mining and mining policy reform, there is a need for the radical overhaul of the existing systems and policy in Cameroon. This will ensure that the economic development is undertaken in a socially and environmentally responsible manner.

While the author does not advocate that there should be knowledge transfer from other countries (e.g. west African or south east African countries such as Ghana or South Africa), where there are more robust and well established practices for the mining sector, it is highlighted that any systems and methods imported from abroad must be adapted to the local situation in Cameroon or other developing countries where technology transfer and capacity building is required. Contextual differences to be considered when undertaking policy transfer to other countries include differences in political structure, ideologies, social and cultural values as well as historical development (Luo *et al.*, 2009). Failure to consider this could lead to failed policy with associated wastage of valuable human and capital resources.

Averting the resource curse in Cameroon ultimately starts by redefining the existing policy framework to address the issues around mineral resources and sustainable livelihoods effectively, especially in the communities directly affected by mining. Without this urgent action, the curse resource could materialise, with the mining communities suffering all the environmental and social impacts but none of the economic benefits of mining as promised by the Cameroonian government's growth strategy.

6.4 Governance aspects in the mining industry in Cameroon – a dichotomy between LSM and ASM economies

This section presents an overview of the governance structure, institutions and forms of rule in the mining sector of the East Region. A snapshot of this structure is presented in Figure 6.2.

Aspects of governance in Cameroon discussed earlier in Chapter Four provide an insight into ways in which the country is territorially bounded and politically governed. The

country operates a centralised system of governance with a powerful presidency. A review of representation in government since the Biya presidency reveals that political power rests in the hands of a strong ethnic hegemony; regional and local governments are weak, and there is no constitutional provision for community involvement in governance; LSM permits are granted by presidential decree while supervision of the mining process is devolved to different ministerial departments with no inter-departmental networking. This is mirrored in the disorderly licensing of LSM operations in the East and other regions which is occurring simultaneously with the mushrooming of informal ASM activities.

As shown in Figure 6.2 , these combine to produce differing forms of rule and governable spaces, each the product of dysfunctionality of governance in the resources sector. As argued by Smith (1992), such governable spaces curiously work against, and often stand in direct contradiction to, one another, with obvious slippages between these spaces (Smith, 1992). Two forms of governable spaces have emerged from this study, both of which are associated the region's mineral wealth – an 'LSM governable space' and an 'ASM governable space'. Each governable space is characterised by forms of rule which are restructuring pre-existing forms of governance.

The LSM governable space has emerged as a result of the discovery of minerals on one hand, and the interest from foreign national and multinational mining companies on the other. As stated earlier in this chapter, anecdotal evidence suggests there are over 55 LSM operations prospecting for different minerals in the East Region. LSM activities are undertaken with state approval, administrative support involving political elites and protection by the police and armed forces. This emerging form of governance constitutes a challenge to customary forms of community authority, inter-ethnic relations and customary institutions through conflicting property rights and land dispossession of the poor.

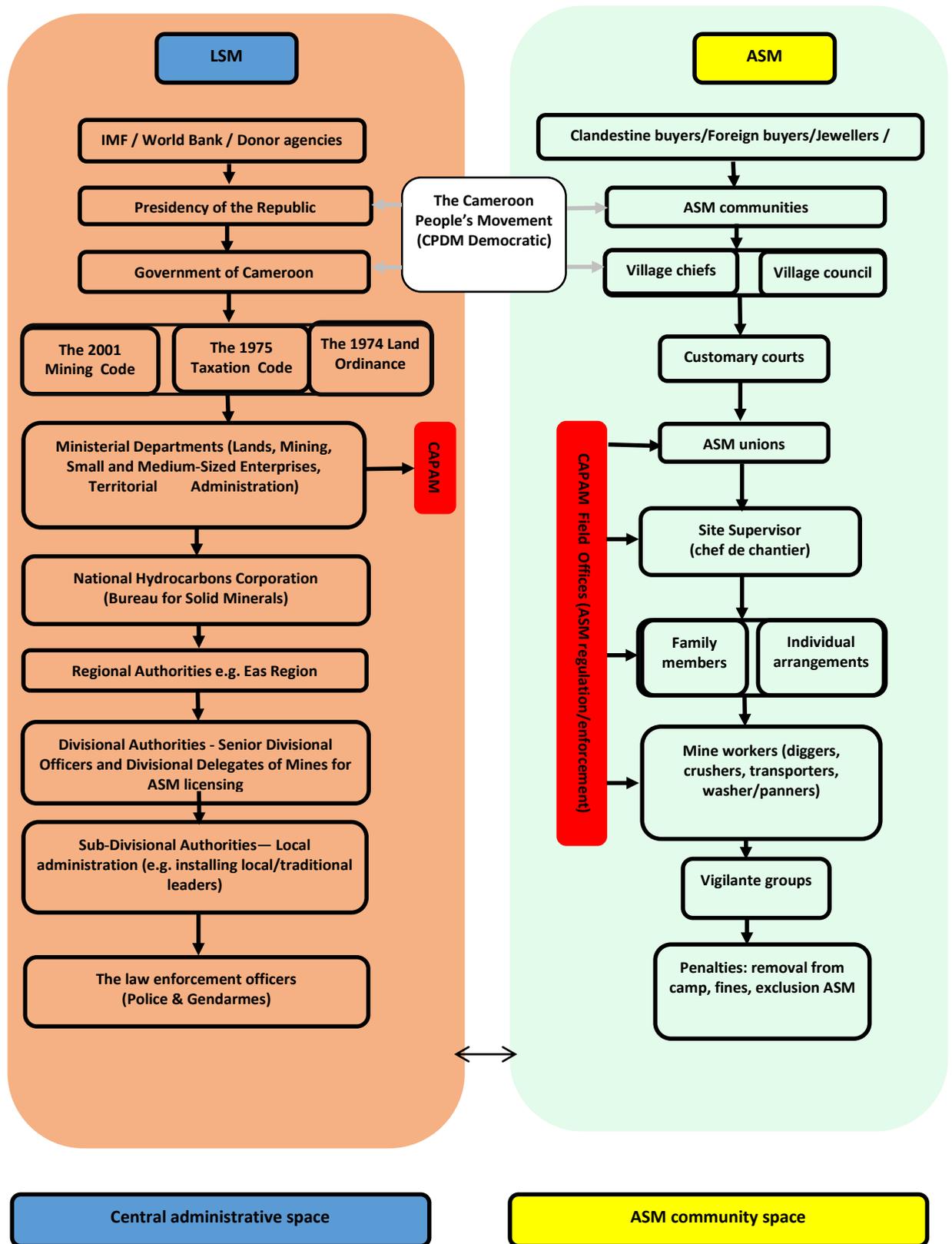
No conflicts have emerged from such transformations in Cameroon, probably due to the stage of mine development which is still at a nascent stage. However, the potential for conflict is illuminated in studies in other sub-Saharan countries, such as in Nigeria, where

property and land disputes are engendered through forms of popular mobilisation and agitation, which Watts (2004) argue, are animated by the desire to gain access to company rents and compensation revenues (Watts, 2004).

The ASM governable space embodies the local chiefs, customary courts, ASM unions and mine workers in the mining communities. Local chiefs wield great power and influence over land access and control; they head their respective village councils, and sit in the customary courts that arbitrate over community issues, including land; ASM unions have emerged as interest groups in the mining communities. ASM workers operate in groups or as families and individuals; security in the communities is provided by vigilante groups. There is a strong sense of belonging from the pits right up to the village councils. Political thought in these communities is skewed towards the ideals of the ruling Cameroon People's Democratic Movement (CPDM). In all six mining districts, ASM communities as governable spaces are constructed through territory, ethnic identity and ASM union membership. This governance structure is a slight modification of, and conforms to, the pre-existing governance spaces in these communities. These ASM governable spaces are shaped by the presence of gold in land perceived to be under community ownership and control – one in which ethnicity, indigenous rights and political homogeneity defines a community.

The emergence of these governable spaces is a consequence of the mineral wealth of the country and region, and the potential for mineral revenues to be introduced into the Cameroonian political economy. It is therefore evident that governance in the mining sector undermines the state's ability, to develop its resources in line with sustainable development principles. Consistent with Watts' (2004) arguments regarding the oil complex and petro-capitalism in the Niger Delta of Nigeria, static institutional description and dynamic sets of forces combine to refigure differing sorts of governable spaces in which contrasting identities and forms of rule come into play.

Figure 6.2: Governance in the mining sector of Cameroon



Source: Author's fieldwork, 2013

6.5 Social exclusion and marginalisation in the mining sector in the East Region

An examination of the context of exclusion and marginalisation from livelihood capitals that communities depend on to construct their livelihoods is an important way of understanding the socio-economic dynamics of ASM. According to Fisher (2007), such an understanding throws light on the dynamics of processes of marginalisation which affect access to mineral resources, as well as illuminating the way that people respond to interventions seeking to integrate artisanal mining into formal resource management structures, forms of productive organization, and legal regimes (Fisher, 2007). Beall and Piron (2005) define social exclusion as “a process and a state that prevents individuals or groups from full participation in social, economic and political life and from asserting their rights (Beall and Piron, 2005). In this study, social exclusion has been inspired by Gore’s (1994) suggestion that the relationship between social identity and entitlement to resources and other social goods is central to processes of social exclusion, tied to a concern with the relationship between poverty and exclusion. This study frames social exclusion in four contexts – exclusion based on: (i) social identity; (ii) exclusion based on ethnicity; (iii) exclusion based on political affiliation; and (iv) exclusion from decision making concerning mining. These forms of exclusion have been elaborated in the following sub-sections.

6.5.1 Exclusion of some social groups from ASM

Social exclusion of marginalised groups in ASM from access to and rights over resources in different contexts involves the classification of artisanal miners as ‘illegal’ due to poor availability of land, insufficient institutional support, and complicated licensing systems (Hilson and Potter, 2003), or it may encompass the expansion of large-scale mining operations into regions previously occupied by artisanal miners (MMSD, 2002b). In the East Region, the social groups commonly marginalised in ASM are women and children by virtue of their restricted access to the centre of the pit which is perceived to be highly mineralised than surroundings (as discussed in Chapter Five, Section 5.3.3.2) 12% of miners in my sample are children; 36% are women – these groups are marginalised through exclusion from the centre of the pits with where concentration of gold-bearing

gravels is high. This means that they are excluded from the opportunity to earn incomes comparable to their male counterparts and older miners. Women, especially, are further excluded from land acquisition for ASM. This study reveals that in all 24 mining communities, women are not involved in the purchase, lease or inheritance of land for ASM. They also do not exercise historical and ancestral rights over land, meaning they can only access land for ASM through marriage or other forms of relationships in the communities in which they reside. The flawed land and mining codes which are both gender neutral, are exacerbating unequal access.

Another aspect of marginalisation, and possibly exclusion stems from the landholding system in the region. Less than 1% of artisanal miners hold titles to their lands (see Table 6.3 above). Additionally, only 6% of ASM workers are licensed (Table 6.6: Legal status of ASM miners in the region), implying over 99% of operations are informal.

Table 6.6: Legal status of ASM miners in the region

Mining district	Permit holder	No permit	In the process of applying for permit	Not aware of the need for a permit
Boden-Colomine	0	17	1	4
Betare-Oya	0	5	18	11
Batouri	14	88	28	2
Yokadouma	9	18	10	5
Garoua-Bouli	0	69	0	0
Kette	2	81	0	7
Total	25 (6%)	278 (72%)	57 (15%)	29 (7%)

Source: Author's fieldwork, 2012/2013

This raises interesting issues concerning access to mineral resources and social exclusion in the context of ASM permits and land rights in Cameroon. Peters (2002) argues that a defining feature of African landholding systems is their social embeddedness, and the fact that land rights are ambiguous and negotiable (Peters, 2002). However, with competition and conflict around mineral resources and mining operations, both large and small-scale, the ambiguity of land rights may be challenged with implications for processes of social

exclusion. Large-scale mining companies are able to draw on the power of the state and bureaucratic processes to acquire exploration and prospecting licences for land over which ‘informal’ claims may have been held by artisanal miners (Dreschler, 2001). As shown in Appendix III, overlapping land claims in the country have been documented, but with no reference to ASM, an activity that has been in operation in the region for over 50 years. This conforms to views that states in sub-Saharan Africa favour large-scale mining interests while artisanal miners are put at a disadvantage through poor education, poverty and life circumstances (e.g. Hilson and Potter, 2003), while illuminating the significance of understanding how, in the context of rapid change to rural livelihoods in Africa (Bryceson, 2002) local competition, conflict and power are shaping the dynamics of the institutionalisation of rights and entitlements to mineral resources (Lund and Boone, 2013).

6.5.2 Exclusion based on identity, ethnicity and political affiliation

Another form of social exclusion (inclusion) identified in this study relates to the relationship between migrant and settler artisanal miners and ethnicity. As shown in **Error! Reference source not found.**, there is limited inter-community migration, which contradicts the long-established view that ASM is a highly migratory activity (Hentschel *et al.*, 2002).

Table 6.7: Migrant and settler ASM operatives in the East Region

Mining district	Resident or migrant	
	Resident	Migrant
Boden-Colomine	22	0
Betare-Oya	33	1
Batouri	122	10
Yokadouma	16	26
Garoua-Boulai	39	30
Kette	58	32
Total	290 (75%)	99 (25%)

Source: Author’s fieldwork, 2012/2013

Within the context of social exclusion, there is rather an indication of inclusion of migrants in ASM than exclusion. In the Yokadouma mining district, for example, 62% of miners interviewed are migrants of Kako, Hausa and Fulani origin. They are involved in every aspect of ASM, including union membership, land access and control. Although this district is homeland to the Baka and Bangando people who are believed to have occupied the area for over 10,000 years (Ngoh, 1996), migrant Kako and other miners are not excluded from access to land and ASM. This situation is, however, different from other major ethnic groups of the country.

Although women and children who have restricted access to the centre of the pits (perceived as being more mineralised than surrounding sectors) ethnic identity has emerged from this study as one of the core forms of social exclusion. The discussion in Chapter Four presents the Republic of Cameroon as ethnically heterogeneous with over 250 tribal groups. **Error! Reference source not found.** presents the distribution of the major ethnic groups by proportion of the country's population, while Table 6.9: Distribution of ASM operatives by ethnic group shows the distribution of ASM workers by ethnicity.

Table 6.8: Major Ethnic groups in Cameroon

Ethnic group	Locations within Cameroon	Proportion of total population
Cameroon highlanders	West, Northwest, Southwest	31%
Equatorial bantu	Littoral, Southwest	19%
Kirdi	Far North, North	11%
Fulani	Far North, North, Adamawa	10%
North-western bantu	Northwest, West, Southwest	8%
Eastern nigriti	East, South and Centre Regions	7%
Other African	National	13%
Non-African	National	13%

Source: CIA, 2013

Major ethnic groups from the Cameroon highlands, Equatorial and North western Bantu that make up 58% of the country's population are conspicuously absent from ASM operation in the East Region. The local chiefs all alluded to the view that they were colluding with elites from the region and politicians to prevent the commoditisation of

land in the area as a means of ensuring social exclusion of rival ethnic and political groups. This also corroborates an earlier finding of this research where the activity does not experience the level of migration seen in other parts of the world.

While the country may be ethnically heterogeneous, the manifestations by autochthons in close relation with the politics of belonging partly explains ethnic homogeneity in the areas studied. Geschiere (2009) posits that while people see themselves as part of an increasingly global world, they simultaneously become more vested in rhetoric and practices of asserting local belonging. The languages of nativeness, indigeneity, or autochthony talk. In the case of Cameroon, in the struggle to monopolise political power, politicians have found the language of autochthony highly useful, and this may partly explain ethnic homogeneity in ASM operations in a largely ethnically heterogeneous country. This practice echoes what Geschiere and Nyamnjoh (2000) refer to as political liberalization that leads to an intensification of the politics of belonging: fierce debates on who belongs where, violent exclusion of "strangers" and a general affirmation of roots and origins as the basic criteria of citizenship and belonging.

Table 6.9: Distribution of ASM operatives by ethnic group

Mining district	Ethnic origin								
	Baya	Massa	Nina	Eton	Kako	Baka Bangando	Boulai	Hausa/Fulani	Non Cameroonians
Boden Colomine	19	2	1	0	0	0	0	0	0
Betare-Oya	30	2	0	1	1	0	0	0	0
Batouri	28	0	0	0	98	0	3	0	3
Yokadouma	0	0	0	0	17	16	0	9	0
Garoua Boulai	0	0	0	0	0	0	24	45	0
Kette	58	0	0	0	0	0	0	32	0
Total	135	4	1	1	116	16	27	86	3

Source: Author's fieldwork, 2012/2013

This occurrence is largely due to the pluralism in traditional and state institutions, their dynamics and power relations. Lund and Boone (2013) assert that the normative and institutional pluralism prevailing in sub-Saharan Africa means that people struggle and

compete over access to land, and that national governments work with, through and against other actors to gather and institutionalise authority and resource control. This study reveals that ethnic and political identity governs access and control of resources in Cameroon.

6.5.3 Exclusion from decision making relating to land and mining administration

This form of exclusion relates to governance and people's ability to participate in decision making or access to institutions that deal with the management of land and mineral resources. Within the provisions of the Land Ordinance, Article 16 requires the state to take responsibility for managing national lands in such a way as to ensure rational use and development thereof. This means that the granting of mining concessions must follow a process whereby a commission consisting of government agencies and local community representatives identify existing lands and properties for the purpose of avoiding overlapping rights. Nevertheless, all 24 ASM communities in my study area were excluded from the negotiations that led to the allocation of LSM concessions in the region. As shown in Appendix III, the exclusion of these communities from decision making and lack of public information on the existence, location and validity of permits has resulted in overlapping rights – precisely the situation that the ordinance intended to avoid.

This form of exclusion is not conceptualised within ASM literature but relates to the way institutional rules defining exclusionary and inclusionary practices, and the sanctions through which they are enforced, are being transformed in the context of globalization and liberalization-related changes in the role of the state and market (Gibbon, 1995). Fisher (2007), argues that this is connected to issues of citizenship rights and people's involvement in governance processes affecting their ability to make a livelihood from mineral resources, and that questions pertinent in this area include whether and how artisanal miners and mining communities have a voice and role in decision making about changes which affect their entitlements to resources, and whether they have access to institutions responsible for natural resource management and service provision.

6.6 Conclusion

The way natural resources are conceptualised in Cameroon is an intellectually provocative subject. Land access and control are closely linked to ethnic identity and political affiliation. Mineral resources in the East Region are perceived by the local people as something anyone with the approved identity and political belief can access and dig out of the ground for a living. Despite the ethnic heterogeneity of the country, ASM in the East region is ethnically largely homogenous, with about 65% of respondents being of either Baya or Kako origin. Official land tenure procedures are not enforced in the region, leading to overlapping claims over the same parcel of land. There is clearly a lack of inter-departmental co-ordination, communication and co-operation. The country is yet to formulate a land use policy and there seem to be lack of transparency in the allocation of concessions for different land uses. LSM concessions have not yet been gazetted, while legislation governing land, mining, and forestry are not enforced to ensure third party access rights are protected.

Ministerial departments are frequently broken up to compensate political allies, leaving key sectors such as land and minerals without clearly defined control. Mistrust and lack of synergy between different departments is the norm. Everyone in government or position of power wants control over or access to resource rents, hence the lack of coordination amongst government departments. There is confusion over who is responsible for what, and above all, there is an acute shortage of expertise to manage these vital departments, leaving the country's wealth at the mercy of rogue politicians, businessmen, local elites, national and international mining companies.

Amidst such a dysfunctional system, thousands of ASM families are digging and panning every corner of the region to construct their livelihoods. Operatives are well organised, and with a well-structured governance regime as shown in Figure 6.2. Key questions that have never been posed are: How will the rural landscape of this region be transformed once LSM mines are developed for production? What would be the implications for ASM

workers and their ability to earn a living sustainably from their activities? This will be the focus of Chapter Eight.

7 Chapter Seven – ASM incomes in the East Region and its multiplier effect on the local economy

7.1 Introduction

This Chapter draws on discussions in Chapters Five and Six, in which the organisational, demographic, social and governance dynamics of the region are seen to be enhancing ASM production in the districts, making it the most profitable livelihood in the areas studied. In this Chapter, incomes of the miners interviewed are discussed in greater depth, and by mining district, age group and gender. The Chapter discusses the outcomes of these incomes for the miners' livelihoods, lifestyles and the local economy; and how this could inform policy evolution in the ASM sector in Cameroon.

There are four sections in this Chapter. After this introductory section, the second presents and discusses the incomes of households by district. In the third section, I present the variation in the miner's incomes by differentiating between the incomes of men, women and children. The section also illuminates variations between the mining districts studied. The fourth section of this chapter presents the qualitative analysis of the miner's expenditure and consumption patterns, and how that explains their lifestyles. The chapter concludes with a brief discourse on the policy implications of incomes earned from ASM gold production.

7.2 Household Incomes from ASM

The incomes all 389 miners interviewed is summarised using describing statistics (shown in Appendices H - M). These incomes have been presented in both local currency (Francs CFA) and United States Dollar (US\$). The incomes have been presented using information on the number of miners per household involved in the activity (see Table 7.1).

Table 7.1 Summary of Household incomes in US\$

Mining District	Range	Minimum	Maximum	Mean	Standard Deviation	Variance
Batouri	5800	600	6400	2700	1340	896,648,114
Betare Oya	4080	420	4600	2546	1095	599,200,713
Colomine	3680	520	4200	2250	934	435,366,233
Garoua Boulai	4600	1000	5600	2391	1028	529,256,095
Kette	5700	500	6200	2396	1100	604,699,225
Yokadouma	3740	460	4200	2020	920	422,853,542

Source: Author's fieldwork, 2012/13.

The incomes of ASM workers at household level has been determined by simply multiplying the average earnings by the number of miners in each household, as shown in Table 7.2.

Table 7.2 Number ASM operatives in each household in the East Region

Mining district	Number of Interviewees	Number of ASM operatives in Household		
		Min	Max	Mean
Batouri	132	1	5	3
Betare Oya	34	2	5	2
Colomine	22	1	4	3
Garoua Boulai	69	1	4	3
Kette	90	1	4	3
Yokadouma	42	1	4	3

Source: Author's fieldwork, 2012/13.

On average, there are three ASM workers per household in each of the regions studied. As shown in Chapter Five, 75% of the miners are below 28 years of age, most of whom are single. This explains why in five of the six mining districts, some households have only one miner. In a number of small pits around Kette district, the miners operate in small family

units, making it feasible to estimate their household incomes. Details of miner's incomes are discussed under sub sections 7.2.1 – 7.2.6.

7.2.1 Batouri

The incomes of ASM households in Batouri is shown in Appendix H. It varies from US\$ 600 to US\$ 6400 per month (mean is US\$ 2700.00 and standard deviation is US\$ 1340) per month. The data obtained as part of the study also show a high degree of variability, with a range of US\$ 5800. There were 132 interviewees from Batouri.

7.2.2 Betare Oya

The 34 ASM workers interviewed in Betare Oya have an average of 2 and a maximum of 5 ASM operatives in their households. Household incomes are shown in Appendix I. They vary from US\$ 420 to US\$ 4600 per month (mean – US\$2546; standard deviation – UD\$1095). The variability in income, like in Batouri, is also higher than the mean, with a range of US\$ 4080.

7.2.3 Colomine

22 ASM operatives from Colomine participated in this study. There are on average 3 miners per household. Household incomes are shown in Appendix J, and varies from US\$ 500 to US\$ 4200 (mean – US\$ 2250; standard deviation – US\$ 934). The range is US\$ 3680, which like in other districts, is higher than the mean.

7.2.4 Garoua Boulai

Garoua Boulai had 69 interviewees, with an average of 3 miners per household. Household incomes are shown in Appendix D. The households earn an average monthly income of US\$ 2391 (with a minimum of US\$ 1000 and maximum of US\$ 5600). Like the other districts presented in this study, the variability is statistically significant to the extent that the range (US\$ 4600) is higher than the mean income of the average household.

7.2.5 Kette

The incomes of miners from Kette is presented in descriptive statistics in Appendix E. There are on average 3 miners per household of all the 90 interviewees. Mean income per household is US\$ 2396. However, there are households that earn up to US\$ 6200 and as low as US\$ 500 per month. The disparity between the high and low earners (range of US\$ 5700) is also very wide and significantly higher than the mean.

7.2.6 Yokadouma

The incomes of the 42 miners interviewed in Yokadouma is presented using descriptive statistics in Appendix F. With an average of 3 miners, households in this district earn a mean income of US\$ 2020 per month. The maximum income in this district is US\$ 4200 and minimum is US\$ 460. The range is US\$ 3740. Consistent with household income data from the other districts, the variability is very high. Average earnings from this district are the lowest among all six districts studied.

The variability in monthly income by household and by district is explained by a number of factors, the most important being age group and gender. These are discussed in detail under Section 7.3 – income variation by age and gender. That notwithstanding, the general observation during the field studies was that income variation is reflective of the hierarchical structure in the mining camps e.g. the high income earners are mostly those households at the top of the ASM management structure (Village chiefs and *chef de chantiers*) and the low income earners being those who are paid daily to perform specific tasks (diggers, panners, transporters) or those who do not undertake the activity on a full time basis. This type of variation that is tied to the hierarchical structure of mining camps is not uncommon in artisanal mining communities in other developing countries as evidenced in a study of “Gold Digging Careers” in East Africa, where Bryceson and Jonsson (2010) explains that ASM income is shared in line with a simple hierarchical structure, consisting of claim owners (30%), pit owners (40%) and diggers (30%).

7.3 Income variability – age and gender

The most significant variation in miner's income that has been noted in this study is that between men, women and children. This variability is presented by district in the following sub-sections.

7.3.1 Income variability in Batouri

The average monthly incomes of miners in the Batouri district has been presented in Table 7.3. On average, male miners in the district earn US\$ 2086 (minimum – US\$ 800; maximum – US\$ 4200; standard deviation – US\$ 997). Women in the district earn on average US\$ 653 (minimum US\$ 360; maximum – US\$ 2200; standard deviation – US\$ 454). Children earn an average of US\$ 547 (minimum – US\$ 200; maximum – US\$ 1100; standard deviation – US\$ 228). These figures show that men earn three times higher than both women and children. Some men earn up to US\$ 4200 per month, which is up to twice the income of the highest female earners. This variability is explained, as discussed above, by their differential roles in the pits, and the number of trips made to the pits per week.

7.3.2 Income variability in Betare Oya

The mean monthly incomes of mine workers from Betare Oya is presented in Table 7.4. The mean monthly income of male miners is US\$ 1952 (minimum – US\$ 530; maximum – US\$ 3000; standard deviation – US\$ 875). For the female miners, average monthly income is US\$ 442 (minimum – US\$ 352; maximum – US\$ 560; standard deviation – US\$ 94). Children in Betare Oya earn US\$ 485 per month on average (minimum – 378; maximum – US\$ 800; standard deviation – US\$ 210). In terms of gender disparity, male miners earn over three times more than their female counterparts. Also interesting to note is the fact that children in Betare Oya earn more than women.

As noted in during the field visits, children are exposed to the pits a few months after birth, as they are inseparable from their mothers. As they grow up, they make regular after-school trips to the pits as they are bound to assist both mum and day in their daily

activities in line with the cultural settings of the area. By the time children, especially boys get to the age of 7-8 years old, they start mining for themselves, and by 15-16 (when still considered as children), their skills and experience enables them to extract more gold from the pits than most women and some older men.

Unlike in other ASM regions such as the Democratic Republic of Congo (See Geenen, 2013) where the activity is considered to represent the worst form of child labour, and where children are exploited, the situation in the East Region is quite different. Here, as discussed in Chapter Five, these boys and girls mine in their own right and become very skilled and experienced by the time they become adults.

7.3.3 Income variability in Colomine

Monthly income data for Colomine is presented in Table 7.5. In this district, trends in income variability is similar to those of Betare Oya. Men in the district earn on average US\$ 1625 per month (minimum – US\$ 660; maximum – US\$ 2600; standard deviation – US\$ 574). Mean monthly earnings for women is US\$ 416 (minimum – US\$ 300; maximum – US\$ 570; standard deviation – US\$ 100). For the child miners in the district, average monthly income is US\$ 795 (minimum – US\$ 690; maximum – US\$ 900; standard deviation – US\$ 148). Also worth noting in this district, like in Betare Oya, is the fact that children earn significantly more than women as discussed in Section 7.3.2 above.

Table 7.3: Income variability by age/sex: Batouri

			Income in CFA FRS	Income in US\$	
Net Income of miners by Gender (Including variant for children)	Male	Mean	1043040.54	2086	
		95% Confidence Interval for Mean	Lower Bound	927512.36	1855
			Upper Bound	1158568.72	2317
		5% Trimmed Mean	1024947.45	2050	
		Median	865000.00	1730	
		Variance	248653299703.813		
		Std. Deviation	498651.481	997	
		Minimum	400000	800	
		Maximum	2100000	4200	
		Range	1700000	3400	
		Interquartile Range	940000	1880	
		Female	Mean	317368.42	635
			95% Confidence Interval for Mean	Lower Bound	242722.83
	Upper Bound			392014.01	784
	5% Trimmed Mean		281520.47	562	
	Median		272500.00	545	
	Variance		51573968705.548		
	Std. Deviation		227099.028	454	
	Minimum		180000	360	
	Maximum		1100000	2200	
	Range		920000	1840	
	Interquartile Range		102500	205	
	Children		Mean	273500.00	547
			95% Confidence Interval for Mean	Lower Bound	220180.83
		Upper Bound		326819.17	654
		5% Trimmed Mean	267777.78	536	
		Median	275000.00	550	
		Variance	12979210526.316		
		Std. Deviation	113926.338	228	
		Minimum	100000	200	
		Maximum	550000	1100	
		Range	450000	900	
		Interquartile Range	130000	260	

Source: Author's fieldwork, 2012/13

Table 7.4: Income variability by age/sex, Betare Oya

			Income in CFA FRS	Income in US\$	
Net Income of miners by Gender (Including variant for children)	Male	Mean	976400.00	1952	
		95% Confidence Interval for Mean	Lower Bound	795782.81	1591
			Upper Bound	1157017.19	2314
		5% Trimmed Mean		971722.22	1943
		Median		770000.00	1540
		Variance		191461500000.000	
		Std. Deviation		437563.138	875
		Minimum		265000	530
		Maximum		1750000	3000
		Range		1485000	297
		Interquartile Range		750000	1500
		Female	Mean	221200.00	442
	95% Confidence Interval for Mean		Lower Bound	162045.43	324
			Upper Bound	280354.57	560
	5% Trimmed Mean		220444.44	440	
	Median		195000.00	390	
	Variance		2269700000.000		
	Std. Deviation		47641.369	94	
	Minimum		176000	352	
	Maximum		280000	560	
	Range		104000	108	
	Interquartile Range		89500	189	
	Children		Mean	242250.00	485
		95% Confidence Interval for Mean	Lower Bound	74904.68	150
			Upper Bound	409595.32	820
		5% Trimmed Mean		236444.44	472
		Median		190000.00	380
		Variance		11060250000.000	
		Std. Deviation		105167.723	210
		Minimum		189000	378
Maximum		400000	800		
Range		211000	422		
Interquartile Range		158250	316		

Source: Author's fieldwork, 2012/13

Table 7.5: Income variability by age and sex, Colomine

			Income in CFA FRS	Income in US\$	
Net Income of miners by Gender (Including variant for children)	Male	Mean	812857.14	1625	
		95% Confidence Interval for Mean	Lower Bound	647280.74	1294
			Upper Bound	978433.54	1957
		5% Trimmed Mean	812619.05	1625	
		Median	725000.00	1450	
		Variance	82237362637.363		
		Std. Deviation	286770.575	574	
		Minimum	330000	660	
		Maximum	1300000	2600	
		Range	970000	1940	
		Interquartile Range	500000	1000	
		Female	Mean	208333.33	416
	95% Confidence Interval for Mean		Lower Bound	155791.64	311
			Upper Bound	260875.03	521
	5% Trimmed Mean		207314.81	414	
	Median		195000.00	390	
	Variance		2506666666.667		
	Std. Deviation		50066.622	100	
	Minimum		150000	300	
	Maximum		285000	570	
	Range		135000	270	
	Interquartile Range		90000	180	
	Children		Mean	397500.00	795
		95% Confidence Interval for Mean	Lower Bound	269575.75	540
			Upper Bound	1064575.75	2129
		5% Trimmed Mean			
		Median	397500.00	795	
		Variance	5512500000.000		
		Std. Deviation	74246.212	148	
		Minimum	345000	690	
Maximum		450000	900		
Range		105000	210		
Interquartile Range					

Source: Author's fieldwork, 2012/13

7.3.4 Income variability in Garoua Boulai

The average monthly income of miners in the Garoua Boulai district is presented in Table 7.6. On average, male miners in the district earn US\$ 1378 (minimum – US\$ 560; maximum – US\$ 3700; standard deviation – US\$ 661). Women in the district earn on average US\$ 432 (minimum US\$ 340; maximum – US\$ 580; standard deviation – US\$ 90). Children earn a monthly average of US\$ 728 (minimum – US\$ 380; maximum – US\$ 1280; standard deviation – US\$ 238). The variation in income among men and women noted in Colomine, Betare Oya and Batouri is also evidenced in Garoua Boulai. Also significant is the disparity between women and children, where the latter earn significantly (up to two times) more than women (see Section 7.3.2 above).

7.3.5 Income variability in Kette

The mean monthly income of mine workers from Kette is presented in Table 7.7. The mean monthly income of male miners is US\$ 1643 (minimum – US\$ 530; maximum – US\$ 3500; standard deviation – US\$ 744). For the female miners, average monthly income is US\$ 467 (minimum – US\$ 360; maximum – US\$ 780; standard deviation – US\$ 124). Children in Kette earn US\$ 568 per month on average (minimum – US\$ 380; maximum – US\$ 960; standard deviation – US\$ 177). In terms of gender disparity, male miners earn over three times more than their female counterparts. There is also some significant disparity in earnings between women and children, where women tend to be earning a lot less than children in the area (see Section 7.3.2 above).

7.3.6 Income variability in Yokadouma

Monthly income data for Yokadouma is presented in Table 7.8. Trends in income variability is similar to those of the other five districts presented above. Men in the district earn on average US\$ 1306 per month (minimum – US\$ 500; maximum – US\$ 2700; standard deviation – US\$ 690). Mean monthly earnings for women is US\$ 550 (minimum – US\$ 340; maximum – US\$ 580; standard deviation – US\$ 82). For the child miners in the district, average monthly income is US\$ 384 (minimum – US\$ 380; maximum – US\$ 400;

standard deviation – US\$ 81). Similar to Batouri, this is the only other district where women earn more than children.

Table 7.6: Income variability by age and sex, Garoua Boulai

			Income in CFA FRS	Income in US\$	
Net Income of miners by Gender (Including variant for children)	Male	Mean	688846.15	1378.000	
		95% Confidence Interval for Mean	Lower Bound	581669.50	1163
			Upper Bound	796022.81	1592
		5% Trimmed Mean	659501.42	1319	
		Median	630000.00	1260	
		Variance	109313765182.186		
		Std. Deviation	330626.323	661	
		Minimum	280000	560	
		Maximum	1850000	3700	
		Range	1570000	3140	
		Interquartile Range	460000	920	
		Female	Mean	216000.00	432.000
	95% Confidence Interval for Mean		Lower Bound	190987.70	282
			Upper Bound	241012.30	482
	5% Trimmed Mean		214444.44	428	
	Median		190000.00	380	
	Variance		2040000000.000		
	Std. Deviation		45166.359	90	
	Minimum		170000	340	
	Maximum		290000	580	
	Range		120000	240	
	Interquartile Range		85000	170	
	Children		Mean	364000.00	728.000
		95% Confidence Interval for Mean	Lower Bound	297949.59	596
			Upper Bound	430050.41	860
		5% Trimmed Mean	358333.33	717	
		Median	380000.00	760	
		Variance	14225714285.714		
		Std. Deviation	119271.599	238	
		Minimum	190000	380	
Maximum		640000	1280		
Range		450000	900		
Interquartile Range		160000	320		

Source: Author's fieldwork, 2012/13

Table 7.7: Income variability by age and sex, Kette

			Income in CFA FRS	Income in US\$	
Net Income of miners by Gender (Including variant for children)	Male	Mean	821578.95	1643	
		95% Confidence Interval for Mean	Lower Bound	699290.10	1398
			Upper Bound	943867.79	1887
		5% Trimmed Mean	799298.25	1598	
		Median	770000.00	1540	
		Variance	138419061166.430		
		Std. Deviation	372047.122	744	
		Minimum	280000	560	
		Maximum	1750000	3500	
		Range	1470000	2940	
		Interquartile Range	592500	1185	
		Female	Mean	233600.00	467
	95% Confidence Interval for Mean		Lower Bound	207991.02	415
			Upper Bound	259208.98	518
	5% Trimmed Mean		228222.22	456	
	Median		190000.00	380	
	Variance		3849000000.000		
	Std. Deviation		62040.309	1240	
	Minimum		180000	360	
	Maximum		390000	780	
	Range		210000	410	
	Interquartile Range		95000	190	
	Children		Mean	284074.07	568
		95% Confidence Interval for Mean	Lower Bound	249063.49	498
			Upper Bound	319084.66	638
		5% Trimmed Mean	278991.77	557	
		Median	280000.00	560	
		Variance	7832763532.764		
		Std. Deviation	88502.901	177	
		Minimum	190000	380	
Maximum		480000	960		
Range		290000	580		
Interquartile Range		170000	340		

Source: Author's fieldwork, 2012/13

Table 7.8: Income variability by age and sex, Yokadouma

			Income in CFA FRS	Income in US\$	
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	Male	Mean	652941.18	1306	
		95% Confidence Interval for Mean	Lower Bound	476260.70	952
			Upper Bound	829621.65	1660
		5% Trimmed Mean	636601.31	1272	
		Median	550000.00	1100	
		Variance	118084558823.529		
		Std. Deviation	343634.339	690	
		Minimum	250000	500	
		Maximum	1350000	2700	
		Range	1100000	220	
		Interquartile Range	475000	950	
		Female	Mean	224736.84	550
			95% Confidence Interval for Mean	Lower Bound	205052.14
	Upper Bound			244421.55	488
	5% Trimmed Mean		224152.05	448	
	Median		210000.00	420	
	Variance		1667982456.140		
	Std. Deviation		40840.941	82	
	Minimum		170000	340	
	Maximum		290000	580	
	Range		120000	240	
	Interquartile Range		70000	140	
	Children		Mean	191666.67	384
			95% Confidence Interval for Mean	Lower Bound	187382.36
		Upper Bound		195950.97	395
		5% Trimmed Mean	191296.30	383	
		Median	190000.00	380	
		Variance	16666666.667		
		Std. Deviation	4082.483	81	
		Minimum	190000	380	
Maximum		200000	400		
Range		10000	2		
Interquartile Range		2500	5		

Source: Author's fieldwork, 2012/13

In all six districts studied, the most significant disparity in miners' incomes pertains to gender, and specifically to the differential roles of men and women in ASM camps as discussed in Chapters Two and Five. This disparity is similar to other ASM regions in the world, and has been widely reported in literature, where the sexual division of labour within the ASM sector is reported to vary from region to region. In many countries, women carry out what is perceived to be 'lighter' tasks, such as crushing, sorting and carrying ore (e.g. Zambia, Drechsler, 2001; Bolivia, Wall, 2000). In Ghana's small-scale sand-mining sector, women carry the sand while the men load the sand onto trucks and also work as drivers (Mensah, 1997). In Brazil, Sena do Nascimento (2001) describes three occupations open to women in the Oriental Amazon's "garimpo" areas: cooking, night club entertainment (e.g. sex workers) and machine owners. In these contexts and types of mining, women are limited to engaging in lower status and lower-paid activities. This stems from a combination of cultural perceptions of appropriate work for men and women and issues regarding women's access to assets (financial, knowledge, time, labour) to engage in mining (Hinton *et al.*, 2004).

In some cases, cultural norms are reinforced by legislation, such as regulation that make it illegal for women to work underground (Drechsler, 2001; Tan Discovery, 1996). Less direct legislation can also restrict women's participation and control over mining activities (e.g. the denial of legal title to land, or the lack of access to credit). Some countries have acted on these issues by changing their legislation to provide women with the same rights to working underground as men (South Africa, Ranchod, 2001), whilst others have attempted to enact gender neutral legislation. The efficacy of these approaches remains to be seen, given the deeply-rooted nature of male dominance in many societies, including the East Region of Cameroon.

7.4 Miners' expenditure and consumption patterns and potential impact on the local economy

In Section 7.3 above, the incomes of ASM operatives in the East Region of Cameroon shows high earnings albeit the rudimentary tools and very basic extraction and processing techniques discussed in Chapter Five. In this section, I present details of the miners

expenditure and consumption behaviors from the qualitative analysis undertaken during the study.

7.4.1 Expenditure and consumption behavior of miners

The expenditure data of mine workers is detailed in the descriptive statistics in Appendices A-F. In Batouri, a typical household ASM household spends on average 29% of their income on all family needs. In Betare Oya, it is 19%; Colomine – 17%; Garoua Boulai – 29%; Kette – 33% and Yokadouma – 38%. Based on the household income data (Table 7.1), operatives could have disposable real incomes of over US\$ 1200 per month.

A village chief

Income	Expenditure
<p><i>“I don’t like telling people how much we make from the pits, in case they gather this information and give it to someone who could use it against us. But as you have explained to us, and because we trust and have faith in what you are doing, I will tell you the trust. There is a lot of money in this activity, especially when we get blessed by the ancestors. In my household for example, we are four miners and although we spend our money separately, we make about 15 million francs every month. In some cases, we make more than 20, even 30 million francs (US\$ 40,000 – 60,000) a month. Come let me show you something. What is this? What you can see here is about 2kg of gold worth about 40million francs. What CAPAM records as gold production in this area is less than 1% of what we produce”.</i></p>	<p><i>“Look at this building my son....although incomplete, I have spent over 25million Francs (US\$ 50,000) to get it to this stage. It would have been a dream to think of such a structure if I was a farmer, or say government work. Thanks to ASM we can raise cash to realise such great ambitions. Additionally, I have a small car that I can drive to Batouri, Bertoua etc. to shop and do other things”.</i></p>

The owner of a small pit in Kambele III

Income	Expenditure
<p><i>“There are three miners in my household. I sell my gold only once in a month. I make on average 2-3 million frs (US\$ 4000 – 6000). My wife prefers</i></p>	<p><i>“I have two sons in Collège Foustel des Coulanges in Yaoundé. I spend more than 5million francs CFA (US\$ 10,000) per son per year for their tuition</i></p>

<p><i>selling each market day and I only get to know how much she has made if it is a big sale. On average, I estimate she makes about 500,000 to 800,000 frs (US\$ 1000 – 1600) per month. As for my two sons, they won't even tell me how much they make, but I guess it could be in the region of 1-2million (US\$ 2000 – 4000) per month".</i></p>	<p><i>only. I don't want them to grow up and be doing this kind of a risky job. Although there is a lot of money in it, things may change tomorrow and there won't be any future for them".</i></p>
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A chef de chantier in Garoua Boulai

<p>Income</p> <p><i>"I don't know how much my household earns. There are times my wife presents only part of the money that she earns. And with my sons, I don't have any control over them. If they earn say 2million frs (US\$ 4000) a month, they will tell me 200,000frs (US\$ 400). But I can guess they make a lot of money. All I need to know is look at their mobile phones and also observe their social habits. Once they change girlfriends and make frequent night trips to Batouri town centre, then I know they have had a good day/week".</i></p>	<p>Expenditure</p> <p><i>"Every year, I invest about 10 million francs CFA (US\$ 20,000) in my livestock business. I now have over 300 cows. It would have been a lot better now but I slaughtered a lot of them about four years ago when we had severe droughts in the Boulai area. My dream is to have about 1000 cows. At that point, I will be producing milk and also selling some of the cows to earn a living. I currently have four herdsmen looking after the cows".</i></p>
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An 18 year old miner in Colomine

<p>Income</p> <p><i>"It is difficult to tell how much my household generates in a month. This is because we sell our gold as soon as we extract them from the pits. There are times we accumulate our production for about a week before selling, especially if the recovery rate is low. There are times also that we accumulate our production for up to two weeks if we plan to embark on a major investment such as improving the condition of our homes, buying motorcycles, opening a retail store, or take some time off to rest, relax and enjoy".</i></p>	<p>Expenditure</p> <p><i>"I bought this motorcycle last year. By the grace of God, I should be able to buy a car by the end of this year. I have a girlfriend who is in the university. I send her 100,000 francs CFA (US\$ 200) every month. Whenever I decide to take a break from mining, I go and visit her in Yaoundé and we spend some time at the Hilton hotel. My friends have asked me to go to Bamenda this year to go and explore the place, so we may hire a car and go and enjoy if God permits".</i></p>
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A 20 year old male miner from Betare Oya

Income	Expenditure
<p><i>"I make an average of about 2million frs CFA (US\$ 4000) every month. But it is difficult to keep a record of how much I make every month. If I produce 40grams today for example, I will sell it and may be go and enjoy myself in Batouri. If I see a new phone in the market, I will buy it. Also there are times we contribute towards our "tortines", so the amount of money I make in a month could be significantly more. Again, as we don't save the money in a bank, it is difficult to tell".</i></p>	<p><i>"Well, I use my money to get any latest phone in the market such as the iPhone or Samsung Galaxy. I also have a laptop and every month, I buy credit from MTN to access the internet. I am thinking of building a house, but maybe that will come when I am 22 years plus. For now, I just want to enjoy myself. This job is very risky, so if you don't enjoy, you will die and leave the money behind".</i></p>

An 18 year Old male miner from Colomine

Income	Expenditure
<p><i>"I cannot estimate my monthly income because I sell the gold as soon as I recover it from the ground. Because of the risks involved in this activity, most of us spend our moneys drinking, buying expensive phones, and going for the most beautiful women around. Look at what happened to one of our colleagues in Betare Oya last week, he was buried alive by a collapsing mine wall. We don't know when it will be our turn, so we just keep enjoying ourselves".</i></p>	<p><i>This job is very risky so I spend any amount on anything I want. My girlfriend used to go out with a guy who works in the Ministry of Tourism but I "seized" her from him because he couldn't compete with me financially. In this modern world, money talks. We did not go to secondary school but we can challenge anyone for "university girls". In this area, right up to Betare, women prefer miners because we look after them very well.</i></p>

A 15 year old female student from Kambele I stated:

Income	Expenditure
<p><i>"My income varies from 80,000frs (US\$ 160) to 320,000frs (US\$ 640) a month. I am a fifth form student in "Lycee de Batouri" I come to Kambele I every weekend to mine and raise money to pay my rents and for other expenses at school, so I</i></p>	<p><i>"I spend my money on my school needs, feeding, and also to buy a good mobile phone. I also spend a lot to purchase airtime so that I can keep in touch with friends in Bertoua, Yaoundé and Douala. I also buy good clothes and shoes which</i></p>

<i>make an average of 80,000frs during school term and about 320,000frs during holidays”.</i>	<i>are items that only kids from rich families can afford”.</i>
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A female miner in Yokadouma

Income	Expenditure
<i>“I go to the pits only twice a week, so I don’t make that much. I make on average 100,000 to 200,000 francs CFA (US\$ 200-400) per month”.</i>	<i>“I spend my money on my children. I also spend a lot of money travelling to Bertoua or Yaounde for medical treatment as there are better doctors there. I also have an expensive mobile phone. I used to focus on farming to feed my three children but I realised that women who are miners make a lot more money. My cousin used to struggle to raise 2000 francs CFA (US\$ 4) for her “tortine” every month, but now she is able to raise 25,000frs CFA (US\$ 50) every month. It is the same thing with me now, so gold mining is very important to us in this community”.</i>

7.4.2 Potential impact on the local economies

This study shows that the miner’s incomes are higher than the average earnings of other professionals in the region and country as a whole. The minimum wage in Cameroon as at 30 July 2014 was 36,270 francs CFA (\$75) per month (Votresalaire.org). This translates to US\$ 881 per annum. The country’s labour code stipulates a minimum salary of 23,514 francs CFA (US\$ 47) per month (Cameroun Labour Code, 1992). A secretary's average wage is 110,000 XAF; a teacher earns 170,000 francs CFA while an accountant earns around 300,000 francs CFA. A normal work week in the private sector is 40 hours.

While it is generally feasible to capture the contribution of large-scale mining on the economy (through royalties, taxes and salaried jobs), very little information exists on the economic importance of ASM to local economies. The UN Economic Commission for Africa considers “the contribution of artisanal mining to income generation and employment

creation, especially in rural areas, as not negligible. ASM also has the potential to catalyze SME development and to foster local economic multipliers and micro mineral cluster formation.”(Pedro, A., 2004). A similar appreciation is expressed in the World Bank’s Poverty Reduction Strategy Paper (PRSP) Handbook: “Small-scale and artisanal mining can be important sources of employment and income for workers, families, and communities. The income they generate can be substantial and critical for further economic development, giving rise to the growth of microeconomic enterprises that supply miners and their families. In some cases, artisanal mining has been well established for many decades, taking place in an orderly manner, and providing reliable cash incomes”. Although there is emphasis in literature that small-scale mining is a default option chosen as a direct result of economic contraction in other sectors or geographic areas (e.g. (Weber *et al.*, 2002), there is little empirical evidence to support such claim a due to the absence of location-specific data on income and expenditure behaviour of artisanal miners.

The stimulus ASM provides to local economies in the region is similar to that of some African Countries such as in Liberia, where Hilson and Bockstael (2011) revealed a situation where a cycle of ‘diamond mining, rice farming and a Maggi cube’ helps buffer operatives against poverty, simultaneously stimulating a number of other economic activities. These findings also builds on some views held by the World Bank that:

“artisanal mining's added value as part of rural livelihood diversification strategies - where it is one avenue of income generation.....assists rural households in building more dynamic and resilient livelihood strategies portfolios by, for instance, ‘dovetailing’ artisanal mining and farming economies. Further, it is a stimulus for trade and subsidiary business development around mine sites just as evidence in industrial or larger-scale mining operations. The question of linkages—how mining interplays with other aspects of local economies—and how to promote better integrated rural development strategies to capture mineral benefit distribution is equally an important question linked to artisanal mining” (World Bank, 2013).

7.5 Conclusion

The potential long-term economic benefits to and arising from the ASM sector are significant, and therefore the sector should be supported and not disengaged from. Therefore, a progressive and regulated approach is required by all stakeholders in the value chain to improve operating practices and transparency where they are found to be deficient or lacking. Any disengagement from the ASM sector is neither a practical nor an ethical option. Such disengagement would deprive the thousands of families who are dependent on ASM from their current livelihoods, would increase their dependence on less ethical and unregulated trade, and would reduce government revenues and the potential for influence by the international community, as is the case of ASM tantalum production in the DRC (United Nations, 2008).

Before adopting such an approach, the government should first of all undertake extensive monitoring of the sector in the country. The lack of monitoring has resulted in lack of data upon which policy could be framed, and potentially very significant losses in terms of revenue. This problem is compounded by the fact that many of middle men (buyers) are residents from neighbouring countries, who cart off the produce back to their countries without paying any taxes (clandestine buyers in the value chain). This lapse within the sector requires that the Cameroon government monitors artisanal mining activities, impose taxes in an equitable fashion and also regulates the activities of foreign buyers to ensure it remains a sustainable livelihood choice for the miners. ASM as a livelihood choice is discussed further in the following chapter.

8 Chapter Eight - ASM as a catalyst for sustainable rural livelihoods in the East Region

8.1 Introduction

This chapter analyses the livelihood potential and opportunities in the study, and how ASM workers in the region rely on these resources to construct their livelihoods. The analyses and discussions in this chapter draws on the sustainable rural livelihood framework discussed in Chapter Two. The chapter analyses the livelihood capitals available to the miners and how they combine these capitals to earn a living. The livelihood strategies in ASM communities have also been examined later in this chapter, and a strong relationship between ASM and smallholder farming has been established. The chapter further discusses the outcomes of ASM as a livelihood and concludes with an assessment of the viability of ASM as a livelihood as well as the vulnerability of miners' over-dependence on the activity.

8.2 Assessment of livelihood assets in the East Region

The sustainable livelihood framework discussed in Chapter Two is drawn upon to assess livelihood assets in the East Region. This framework is a widely deployed approach to poverty alleviation and rural development studies (Scoones, 1998). The burgeoning literature on sustainable livelihoods makes defining the subject very problematic. Carswell *et al.*, (1997) point out that the definitions of sustainable livelihoods are often unclear, inconsistent and relatively narrow (Carswell *et al.*, 1997). Scoones (1998) posits that establishing indicators of outcomes requires a precise answer to the question: what is a sustainable livelihood? And that without clarification, there is the risk of simply adding to the conceptual muddle (Chambers and Conway, 1992). In attempting to answer this question, and following on from different attempts to define sustainability (see Chapter Two, Section 2.5.1) I draw on Chambers and Conway's (1992) definition as:

A livelihood comprises the capabilities and assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base (Chambers and Conway, 1992 p.5).

The UK's Department for International Development's (DfID, 2000) livelihoods framework draws attention to measured changes in different factors that contribute to livelihoods. These factors include: five capital assets (financial, human, natural, social and physical); institutional processes and organisational structure; resilience or vulnerability of livelihoods and livelihood strategies and outcomes. This framework has been adopted as an analytical tool in evaluating the livelihood resources in the East region at the household, community and mining district levels.

The livelihoods framework encourages policy research to reflect on the nature of people's wealth, and to understand the multidimensional nature of poverty and vulnerability. In addition to emphasizing examination of economic dimensions, it encourages researchers to look at human capital (e.g. education and health), social relations, physical assets (e.g. houses, productive assets) and access to natural resources (e.g. water, wood, land) that contribute to individuals' wellbeing. The framework further illuminates asset variability, livelihood vulnerability and resilience as issues that policy research must reflect upon (Centre for Development Studies, 2004).

The livelihood assets in the region have been analysed in terms of people's access to the five categories of capital listed above. There were no major differences observed within or between the six mining districts. Throughout the region, access to natural and social capitals was considerably better than financial and human capitals. In this study, land is considered an asset as it has value and thus is a commodity. Land is therefore regarded as the primary form of natural capital upon which the miners depend for a living.

8.2.1 Natural capital

The natural resource stock (soil, water, air and genetic resources) and environmental services (hydrological cycle, pollution sinks, carbon sinks) from which resource flows and services useful for livelihoods are derived (Chambers, 1987). As discussed in Chapter 6, sections 6.1.1 and 6.2.2, over 98% of the miners exercise either controlled or open access to land, making its availability deemed as ubiquitous. The mineralised deposits in the area, together with other natural resources such as streams, provide an enabling environment for ASM. Seasonality is not an impediment, as in countries such as the DRC, Ghana and Mali (Hilson *et al.*, 2013), ASM and smallholder farming are undertaken simultaneously, with communities spending more time mining than growing crops. In all the communities studied, about 85% of artisanal miners spend 3–6 days each week in the pits. Land availability and the absence of LSM production in the region provides a starting point to miners for establishing successfully a livelihood strategy, as this livelihood resource is an essential precursor for gaining access to others.

8.2.2 Social capital

These are the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions (Chambers, 1987). Access to social assets comes from the network of support that the miners developed over time. In all six districts, the miners operate in cohesive units, with long-established networks for support and reciprocity of services. All 389 miners interviewed belong to an ASM union, which together with village councils are the *de facto* administrative units in the respective communities. ASM union membership stretches to all the remote areas visited, in contrast to CAPAM and government of Cameroon that have been unable to access or integrate these remote localities. This attests to the fact that ASM in the region is an activity that is well organised, and implicates the GoC, like other governments and donor agencies, for being out of touch with the realities of ASM in sub-Saharan Africa and very poorly organised.

8.2.3 Financial / economic capital

This is the capital base (cash, credit/debt, savings, and other economic assets including basic infrastructure and production and technologies) which is essential for the pursuit of any livelihood strategy (Chambers, 1987). The entire region is characterised by poor access to financial assets. As shown in **Error! Reference source not found.**, the miners have no access to independent credits or funding. Their only sources of funds for investment in ASM are personal savings and support from friends and families.

The mining communities also suffer from restricted access to economic assets such as roads, educational facilities, housing and general infrastructure that could enhance their capabilities. Access to production equipment such as tools and machinery also restricts the miners to the most rudimentary forms of ASM production as shown in Table 8.1.

Table 8.1: Access to credit in ASM communities

Funding Sources	% of miners
Personal savings	50.4
Friends and family	20.8
None	27.2
Financial institutions	0

Source: Fieldwork by author, 2012/13

Table 8.2: Use of equipment and machinery

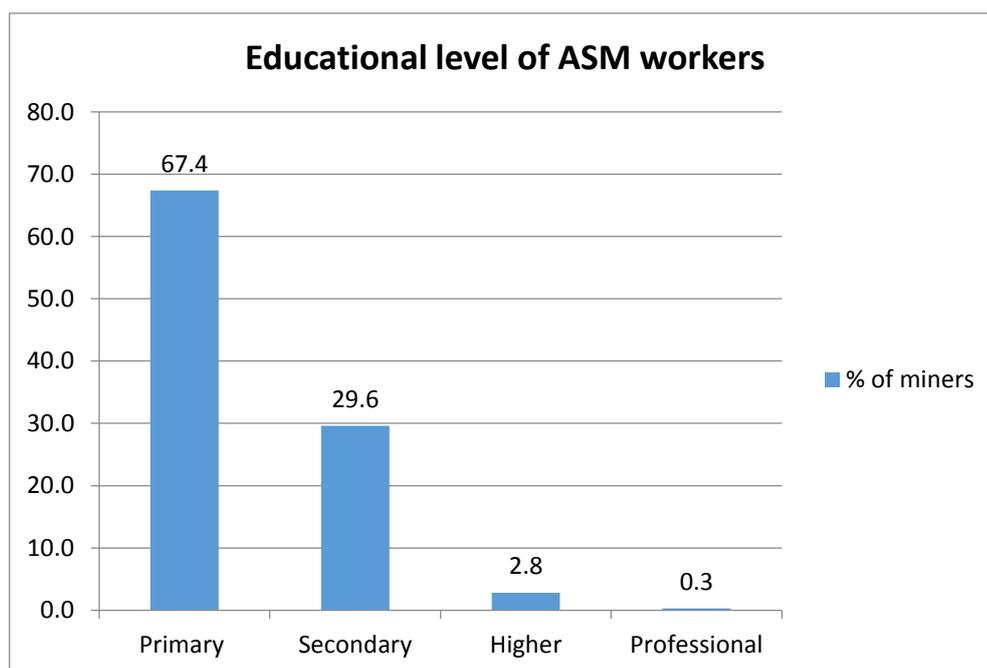
Equipment and tools	Proportion of miners
Mechanised (caterpillar, JCB, rotary washer)	0.3%
Semi mechanised (grinding machines, water pumps, washing beds)	9.8%
Rudimentary (pick axes, spades, washing pans, wheelbarrows)	30.6%
A variable mixture of mechanised and semi mechanised methods	7.2%
A mixture of rudimentary and semi-mechanised methods	23.7%
A mixture of rudimentary, semi and fully mechanised methods	28.5%

Source: Fieldwork by author, 2012/13

8.2.4 Human capital

This includes the skills, knowledge, ability to labour and good health and physical capability important for the successful pursuit of different livelihood strategies (Chambers, 1987). The mining communities have the capacity to work and are endowed with a young workforce that is most suited to the manual labour required in the pits. The ages of the miners range from 14 to 66, with a mean of 27. In all six districts, over 72% of the workforce is below 30 years old. The quality of labour was assessed using the formal educational level of the miners. There is generally a limited access to skilled and professional workforce as shown in Figure 7.1. This partly explains the lack of mineral processing activities such as gold amalgamation as noted in the study.

Figure 8.1: Formal qualifications of labour in the mining communities



Source: Authors field work 2012/2013

8.2.5 Physical capital

Many studies of poverty and livelihood assessments reveal that the lack of particular types of infrastructure such as roads, markets and hospitals is considered to be a core dimension of poverty (DfID, 1999). The poor infrastructural network illuminated in Chapter Three (Section 3.11) results in smallholder farmers in most parts of Cameroon spending long periods in non-productive activities such as collection of fuel wood. In the East Region, the lack of infrastructure results in the inability to distribute farm inputs such as fertilizers and low agricultural productivity. Further, it is difficult and expensive to transport agricultural produce to markets. The increased cost of physical capital in the region means that smallholder farmers, hunters, fishermen and traders operate at a comparative disadvantage in the market. Against this backdrop, thousands of families have turned to ASM because the activity relies less on the physical assets in the region than other livelihood choices.

8.2.6 Institutional and organisational influences on ASM

In order to create livelihoods, the miners combine the capital endowments that they have access to and control over. Access to these resources is governed by the institutional and organisational influences on resources discussed in Chapter Six. Land tenure legislation is poorly enforced, and people in the area still exercise the *de facto* land rights through common access. This gives miners the leverage to derive value from land either through mineral extraction or farming. Large-scale mining is still at a nascent stage and this has resulted in ASM workers operating undisturbed either by the state regulatory apparatus or LSM operations protecting their claims in the region. The creation of CAPAM to assist what the GoC estimates to be 20,000 to 30,000 ASM workers in the entire country (Sale, 2006) reflects how poorly ASM is understood within policy circles in the country. Records of ASM union membership in Chapter 5.3.1 indicates there are over 50,000 workers in this region alone.

Lack of information and poor understanding of the sector by the GoC and donor agencies has resulted in ineffective organisational arrangements to regulate and support the sector. Hilson (2005) argues that inadequate understanding of the demographics of target

populations on the part of African governments always lead to ineffective and inappropriate intervention schemes, and calls for strengthened policy for assistance in the sector to be based on more precise data regarding the number of people operating in ASM regions, as well as their origins and ethnic backgrounds, ages and educational levels. Improved understanding of the sector in Cameroon is therefore required before the government could promote sector-specific projects that aim to facilitate access to the required livelihood assets. Whilst this would enable the state policy machinery to exploit the situation more effectively, it would be insufficient for policy intervention unless other structural elements of the ASM in the country are better understood. CAPAM's limited field presence (contrary to the union representatives who were seen to be in every mining community visited) underscores how disconnected the government is from the realities on the ground. This top-down approach to policy and regulation in the country reflects on poor understanding of the sector, and as explained in Chapter Six, why CAPAM has failed to serve the purpose for which it was intended, namely to help channel minerals from informal into formal circuits and to assist miners in obtaining permits as there is no baseline census information upon which such policy was formulated. The vacuum in policy and regulation has been filled by an organised ASM structure shown in Chapter Six (Figure 6.2), and this dual institutional structure governs access to assets required by these rural people to construct their livelihoods.

8.3 Rural livelihood strategies: Limitations for ASM communities in the East Region

The ability of miners to pursue different livelihood strategies is dependent on the basic material and material and social, tangible and intangible assets that they have in their possession. Such livelihood resources can be seen as the capital base from which different productive streams are derived streams are derived from which livelihoods are constructed (Scoones, 1998). Studies on ASM and ASM and livelihoods diversification (e.g. Banchirigah and Hilson, 2010; Hilson, 2011) strengthen strengthen understanding of the dependence of poor people in rural areas on land-based resources. This resources. This study reveals that ASM is the primary livelihood in the area (see Table 7.3 below). The below). The ASM communities do not have the capability to intensify or extensify their agricultural base agricultural base due to limited access to markets for farm products and the removal of subsidy on

subsidy on agriculture. Furthermore, it has been revealed earlier in Chapter Five that there is limited is limited migration amongst these communities. This therefore limits the miners to one of two possible of two possible livelihood strategies - livelihood diversification to a range of non-ASM income-generating activities both temporarily and permanently. This strategy is centred on six core on six core activities as shown in

Table 8.3.

Table 8.3: Livelihood diversification in the East Region

Mining district	Total no of ASM interviewees	Livelihood diversification choices in the East Region of Cameroon					
		Smallholder farming	Hunting	Fishing	Motorcycle transportation	Trading	Animal husbandry
Boden-Colomine	22	22	1	15	2	3	0
Betare-Oya	34	30	1	3	7	4	1
Batouri	132	130	8	0	3	3	0
Yokadouma	42	30	14	0	0	10	0
Garoua Boulai	69	68	0	0	0	8	12
Kette	90	90	0	0	0	7	9
Total	389	370	24	18	12	35	22

Source: Fieldwork by author 2012/13

The miners interviewed undertake ASM and at least one other activity. Based on the interviews and community-level ethnographic study, livelihood diversification in each mining district was identified and grouped according to the miners' dependency on these activities. Whilst some of the miners are able to diversify their livelihood by combining ASM and other activities such as trading (9%), hunting (6%), animal husbandry (6%), fishing (5%) and transportation (3%), ASM and smallholder farming (95%) emerged from the study as the most dependable livelihood combination. This is discussed in detail in the following sub-section.

8.4 ASM and smallholder farming: a growing connection

The link between ASM and smallholder farming has dominated the artisanal mining literature in the past few decades. As discussed in Chapter Two, his growing body of literature has brought attention to patterns of livelihood diversification unfolding across many rural communities in sub-Saharan Africa, especially in ASM areas. Haggblade *et al.* (1989) provided the earliest review of such diversification, suggesting that communities in sub-Saharan Africa derive 25%–30% of their incomes from non-farm activities. Later studies other authors (Reardon *et al.*, 1994, 1998; Bryceson, 1996; Ellis, 1998; Ellis, 2000; Barrett *et al.*, 2001; Tieguhong *et al.*, 2009; Hilson and Garforth, 2012; Hilson and Garforth, 2013; Hilson *et al.*, 2013) provided further evidence of poor farmers across the sub-continent branching out into ASM. Although the Cameroonian situation is mentioned rather scantily in these studies, they provide a platform for a more detailed empirical investigation of livelihood diversification in parts of the country such as the East region.

There is a strong connection between ASM and smallholder farming in the East region. During my interview with the Chief of Kambele II village in May 2013, he encapsulated the connection succinctly:

When the white people came to this area and settled in Batouri and Betare-Oya, we were all farmers. Look at our land and see how fertile it is.....we grow corn, cassava, cocoyam, plantain, banana and groundnut. We also cultivate some cash crops such as cocoa and coffee, but when the white people started gold mining in Batouri, all the young people moved to ASM because they were paid a lot more money than what farming could generate. Towards the end of colonial rule, our communities had become used to mining. ASM was seen as an activity for the strong, powerful and influential in society. Even now, the only way young men demonstrate their masculinity is by going to the pits to dig for gold. No woman would marry a man who does not work in the pits, and this is how ASM has become enshrined in our societal life. We are still farmers here, but we grow food crops just to feed our families. The conditions of our roads are very poor, as you may have noticed on your way to this place. This means we cannot take our cash crops to the

buyers when we need to, but with mining, it is guaranteed that buyers would knock on your door all year round to buy your minerals.

Although ASM is the principal livelihood in this region, the people have maintained subsistence agricultural production in a diversified livelihood portfolio. Over 95% of all the miners engage in smallholder farming. In Boden-Colomine and Kette, all the miners interviewed are engaged in farming. The farming season and crop specialisation reflects on the needs of the people, as observed in all the local markets visited. The people of this region combine farming with ASM as a livelihood diversification and resilience strategy. Follow on from the theoretical framework laid down in Chapter Two, the story in the East region is different to what Bush (2009) calls *accumulation by dispossession* – a process where the rapid proliferation of foreign-financed large-scale gold mining activity has led to the seizure of many rural inhabitants' farmlands across many stretches in sub-Saharan Africa, resulting in farmers branching out into ASM (Bush, 2009), or what Hilson and Garforth (2012) refer to as *diminished legal access that has resulted from the Ghanaian government's move to establish a dual gold mining economy* (Hilson and Garforth, 2012, p. 439). As revealed in this study, such dynamics are yet to characterise the ASM economy in the East region where land availability and access are not thought by local and academic observers to be the drivers of informality.

Seasonality in agricultural production is another cause that has been blamed for continuous household consumption needs being mismatched with uneven income flows (Ellis, 1998) and a possible reason why farmers diversify their livelihood portfolios. Hilson and Garforth (2012) challenge this rather simplistic view by contesting that the poverty alleviation strategies in the region, which have, as their centrepiece, the intensification of support to smallholder farmers may not be in the best interests of the rural African households due to seasonality in production and most importantly, the limited income generation capacity of smallholder farming in liberalised markets. Hilson and Garforth (2012) describe these as *strands of agricultural poverty* which has led hundreds of thousands of the region's households to diversify their livelihood portfolios in an attempt to avert risk and generate the disposable incomes needed to improve their quality of life. Such diversification desire has been noted in the East Region, where, as revealed in this

study, over 41% of miners were diversifying their livelihood by turning to the non-farm economy and ASM in particular.

Despite such a strong link between smallholder farming and ASM in the region, larger proportions (over 42%) of miners were born to mining families and grew up being part of this social mix. Based on these findings, the emerging theme in ASM literature of rural farmers branching out into ASM to diversify their livelihood could be contested in the area.

8.5 Assessing outcomes from ASM in the East Region

In this study, the outcome of ASM as a livelihood has been assessed in two facets: firstly, by examining the adequacy, security, well-being and capability of the activity in enabling the miners to earn a living; and secondly by examining the resilience of ASM and the natural resource base on which it depends. These sub-components are discussed in the following sub-sections.

8.5.1 Employment and subsistence production

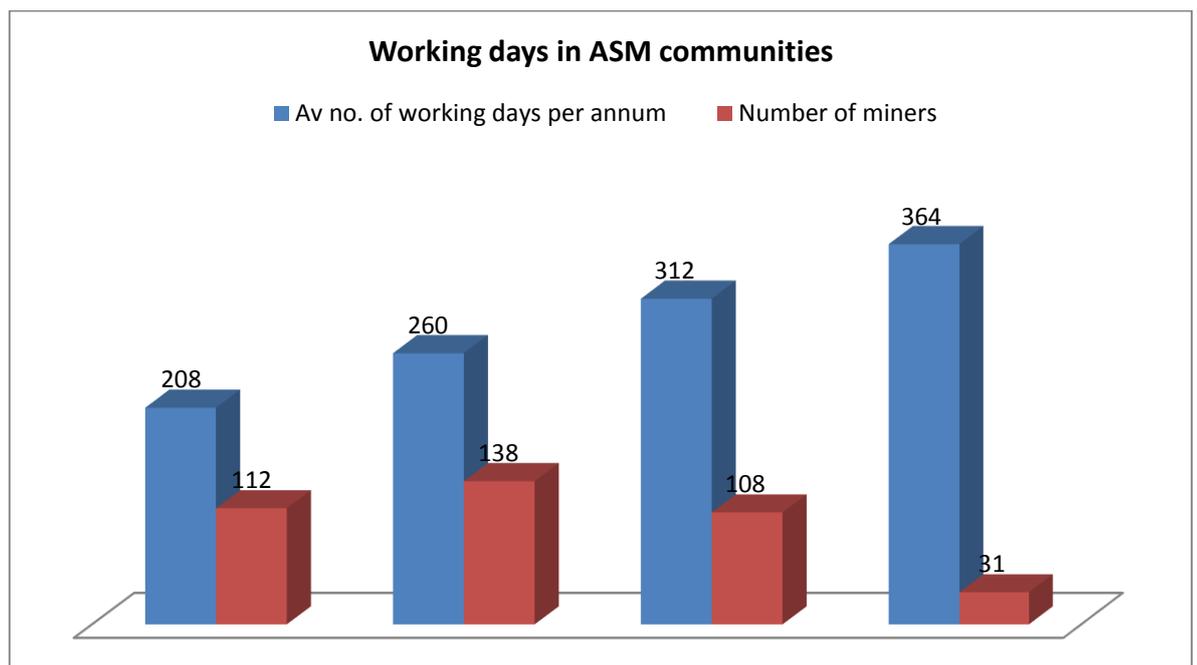
All the households interviewed for this study engage in ASM and at least one other activity to earn a living indicating that these households are diversifying their livelihood portfolios as shown in

Table 8.3 above.

One criterion used in assessing livelihoods is the ability of a particular combination of livelihood strategies to generate income, food and services for a certain part of the year through waged labour and subsistence production (Scoones, 1998). Households in the region depend on ASM and one or more activities such as farming, trading, transportation, hunting, fishing or animal husbandry to construct their livelihoods. However, in all the 24 communities studied, people spend four days on ASM and two days on other activities on average. Trading and transportation were identified as the primary waged activities, while the others, especially smallholder farming, were seen to be providing some form of subsistence. In terms of income and production aspects, for a combination of livelihoods to be sustainable, various target levels have been suggested, but 200 days a year appears

to be widely used as a minimum level to create a livelihood (Lipton, 1993, 1991). All 389 people interviewed engage in ASM on a full-time basis or combine ASM with one or more activities to create their livelihoods. They work on an average of 4 - 7 days a week or 208 – 364 days a year as shown in Figure 8.2.

Figure 8.2: Working days in ASM communities



Source: Author's field work 2012/2013

All the respondents engage in waged and subsistence production for at least 4 days a week. Over 63% (246) engage in ASM and other livelihoods for between 5–6 days a week (208–364 days a year). Although the proportion of the population available for work in the region could not be measured due to the absence of reliable demographic data in each community studied, it could be inferred, as stated in Chapter Five (Section 5.3.2), that a significant proportion of the population in the region is available for work (i.e. the potential labour force participation rate), and a significant number of livelihoods created thereof.

8.5.2 Assessing the livelihood potential of ASM in poverty alleviation

As indicated in Chapter One (Section 1.4.3), poverty is a common indicator used in the assessment of livelihoods. Various poverty indicators can be used to determine income or consumption levels, but the most commonly used indicators are:

- **Incidence of poverty (headcount index):** This is the share of the population whose income or consumption is below the national poverty line, that is, the share of the population that cannot afford to buy a basic basket of goods (Ravallion, 1998). This generally refers to the proportion of the population living on less than US\$1.25 a day at 2005 international prices (UN, 2008);
- **Depth of poverty (poverty gap):** This index is a measure of the intensity of poverty, and provides information regarding how far off households are from the poverty line (UN, 2008). This measure captures the mean aggregate income or consumption shortfall relative to the poverty line across the whole population. It is obtained by adding up all the shortfalls of the poor (considering the non-poor as having a shortfall of zero) and dividing the total by the population; and
- **Poverty severity (squared poverty gap):** This takes into account not only the distance separating the poor from the poverty line (the poverty gap), but also the inequality among the poor. According to Bourguignon and Chakravarty (2003), a higher weight is placed on those households who are further away from the poverty line (Bourguignon and Chakravarty, 2003). As for the poverty gap measure, limitations apply to some non-monetary indicators.

In this study, the headcount index has been used to determine if ASM alleviates or perpetuates poverty in the region. Furthermore income inequality amongst ASM workers has been assessed using Gini coefficients. There are several advantages and disadvantages for each measure, as well as some major measurement challenges (Greeley, 1994). However, such quantitative assessments of poverty can be used in combination with more qualitative indicators of livelihoods (Jodha, 1988; Schaffer, 1996). The size of each household in all the districts is presented in Table 7.4. This consists of ASM operatives and their dependents. The average monthly earnings per household from ASM is presented in Table 8.5 while income per head is presented in Table 8.4.

Table 8.4: Household size distribution (number) in ASM communities in the East Region

Mining districts	Number of dependents per household													Mean
	0	1	2	3	4	5	6	7	8	9	10	11	12	
Boden-Colomine	1	3	2	2	1	3	4	5	0	0	0	0	1	4.7
Betare-Oya	0	2	7	9	8	6	1	1	0	0	0	0	0	3.6
Batouri	16	9	60	34	11	2	0	0	0	0	0	0	0	2.2
Yokadouma	8	1	16	16	1	0	0	0	0	0	0	0	0	2.0
Garoua-Boulai	13	5	14	27	7	3	0	0	0	0	0	0	0	2.3
Kette	12	10	33	28	6	1	0	0	0	0	0	0	0	2.1

Source: Field Work by author 2012/13

Tables 8.1 to 8.4 in Chapter Eight reveal that ASM workers and their dependents in the region all live on between US\$ 16 (Boden-Colomine) and US\$ 42 a day (Batouri).

One question that remains unanswered is why, despite such promising outcomes from ASM in the region, the GoC and donor agencies have failed to nurture ASM as an activity within Cameroon's poverty alleviation strategies. The country's 2003–2009 poverty reduction strategy between 2003–2009 noted disappointing overall progress during 2000–2008 against key socioeconomic indicators, partly due to weaknesses in structural policies, governance, and the business environment (IMF, 2011), as progress in reducing poverty was hampered by limited infrastructure, as well as access to appropriate education and health services. The new strategy aims to adjust the overall objectives and address the weaknesses of the various sector policies, including some sectors that had not been prioritised in the first strategy (e.g. energy, telecom, artisanal mining, rural development, and governance). Although it builds on a long-term vision extending to 2035; on a 2008 household survey; and on a medium-term expenditure framework prepared with technical support by the European Union and the World Bank, this strategy is unlikely to be successful in reducing the poverty level below the 39% mark unless it is in tune with realities on the ground such as those relating to the ASM sector.

To determine whether there is income equality/inequality amongst ASM households, and hence formulate poverty eradication policies around such a high income generating activity, Gini coefficients have been used as shown in Table 8.5.

Table 8.5: Income distribution and inequality (equality) in ASM communities in the East Region (CFA Franc)

	Mining districts/Summary Statistics on ASM incomes						The East Region
	Boden-Colomine	Betare-Oya	Batouri	Yokadouma	Garoua-Boulai	Kette	
Min	260000	210000	300000	230000	500000	250000	210000
Max	2100000	2300000	3200000	2100000	2800000	3100000	3200000
Median	1100000	1200000	1200000	825000	1100000	1025000	1100000
Total income	24760000	43260000	179660000	42430000	82490000	107840000	480440000
No of miners interviewed	22	34	132	42	69	90	389
Gini coefficient	0.350	0.246	0.059	0.184	0.084	0.088	0.021

Source: Author's fieldwork,, 2012/13

For each of the six mining districts, Gini coefficients have been represented graphically by the area between the Lorenz curve and the line of equality (Figures 8.3 to 8.9).

Figure 8.3: Lorenz curve, East Region

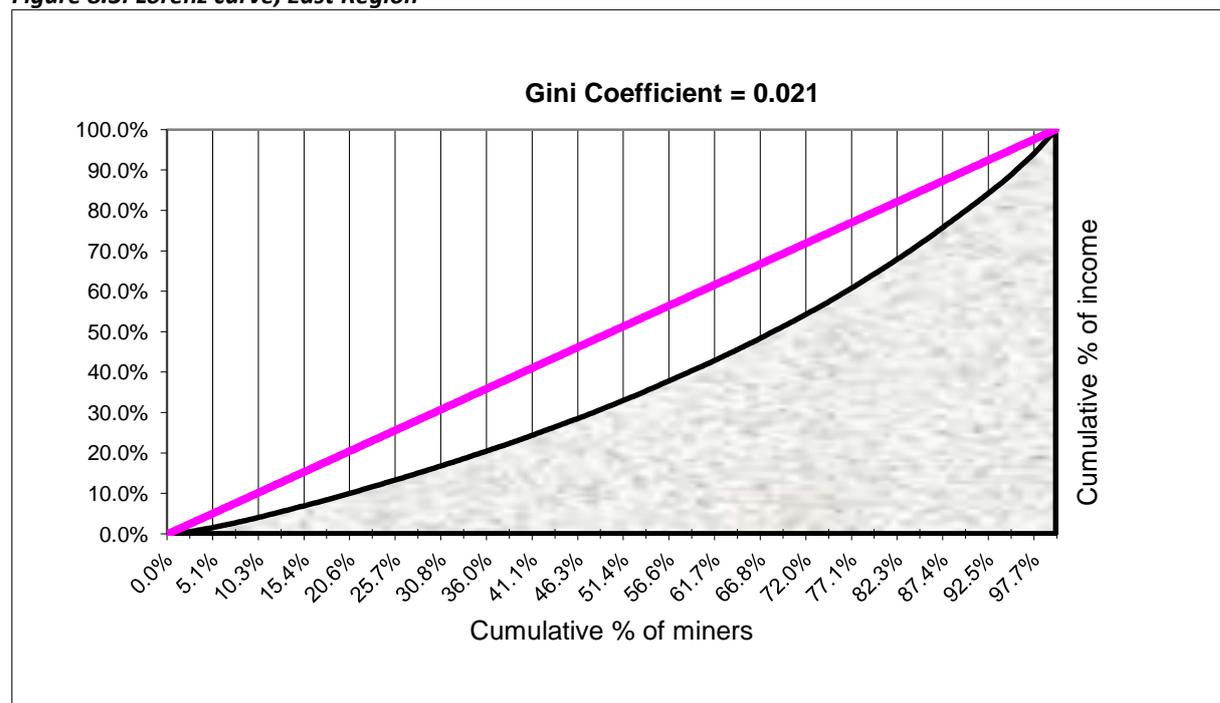


Figure .8.4: Lorenz curve, Boden Colomine

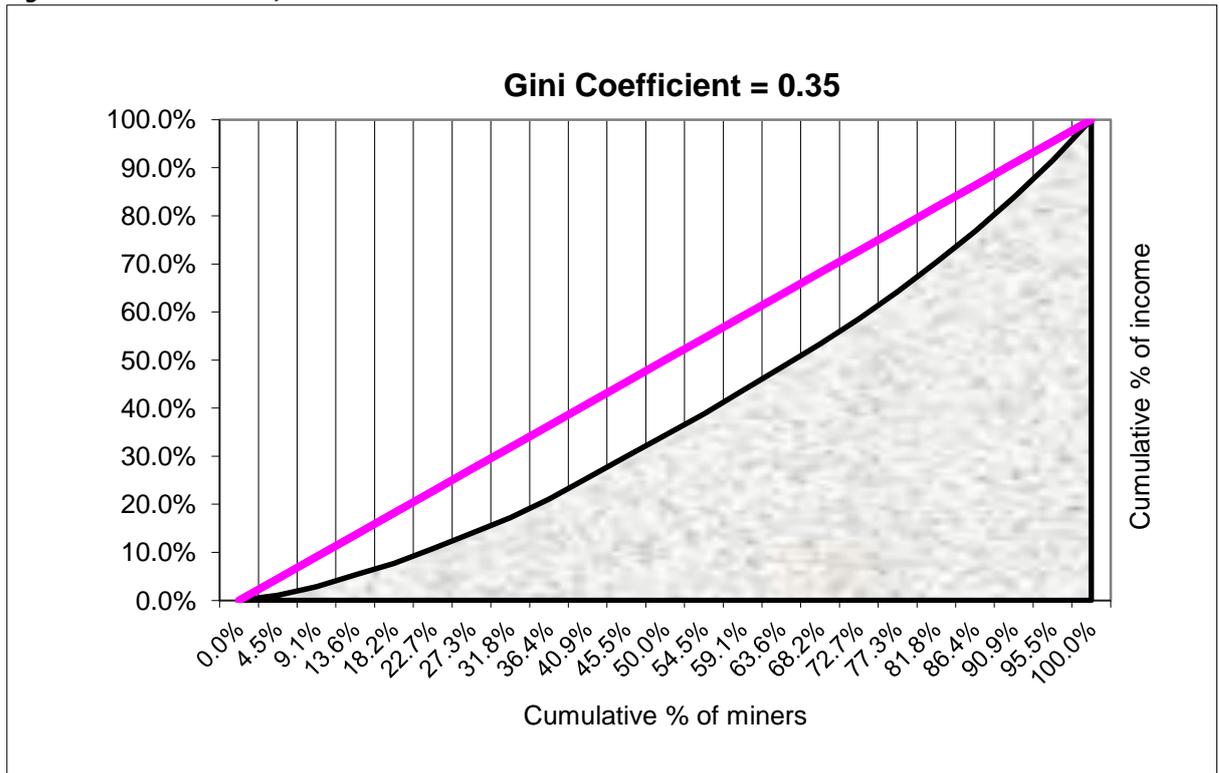


Figure.8.5: Lorenz curve, Betare-Oya

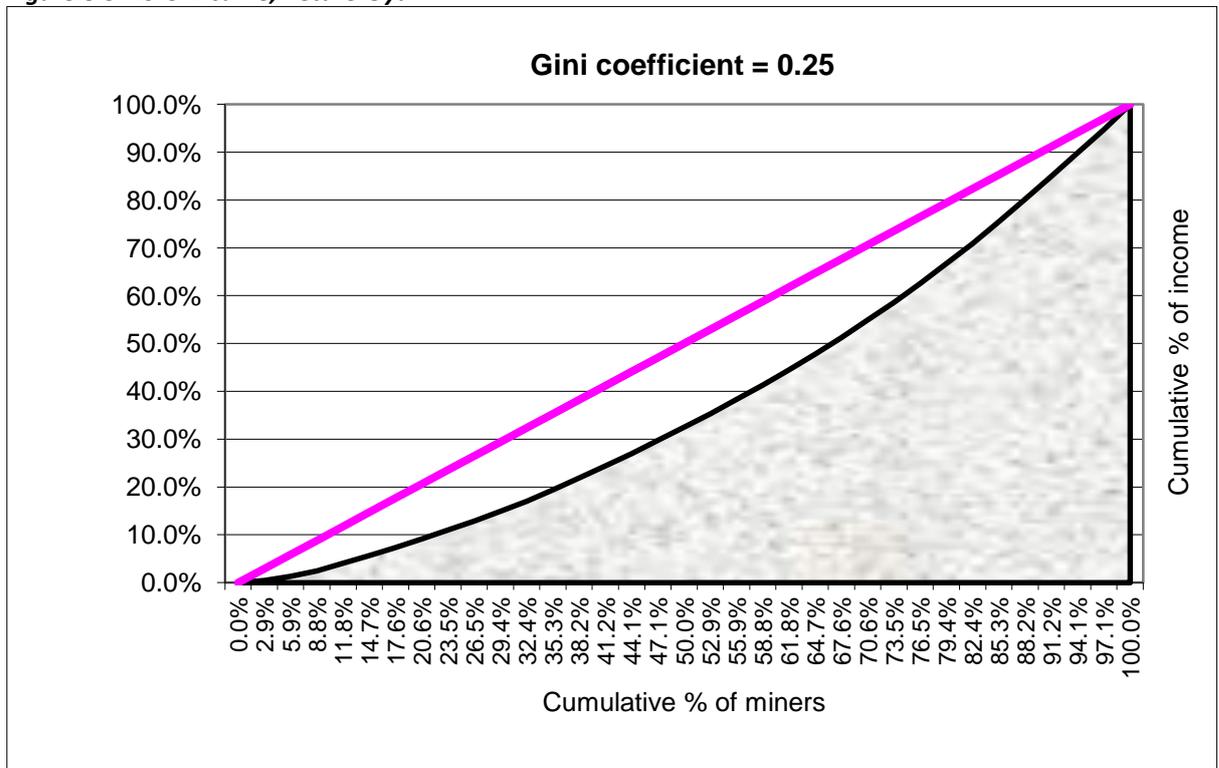


Figure .8.6: Lorenz curve, Batouri



Figure.8.7 Lorenz curve, Yokadouma

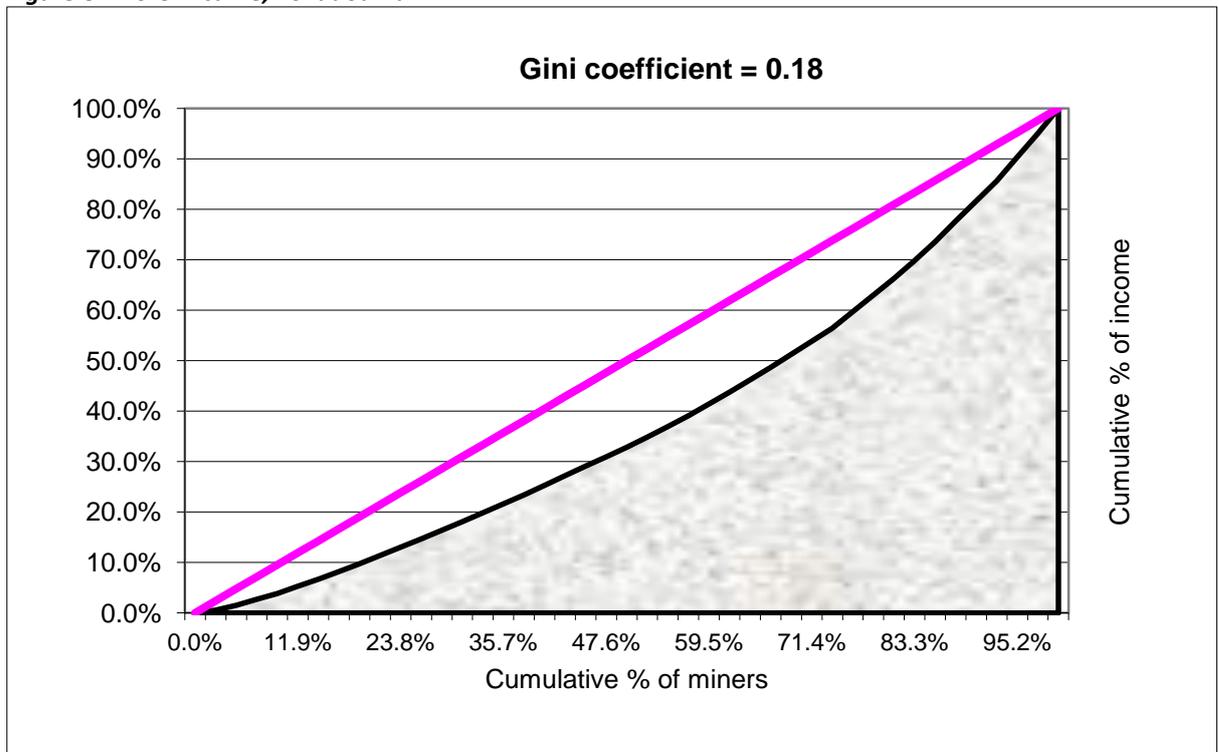


Figure.8.8 Lorenz curve, Garoua-Boulai

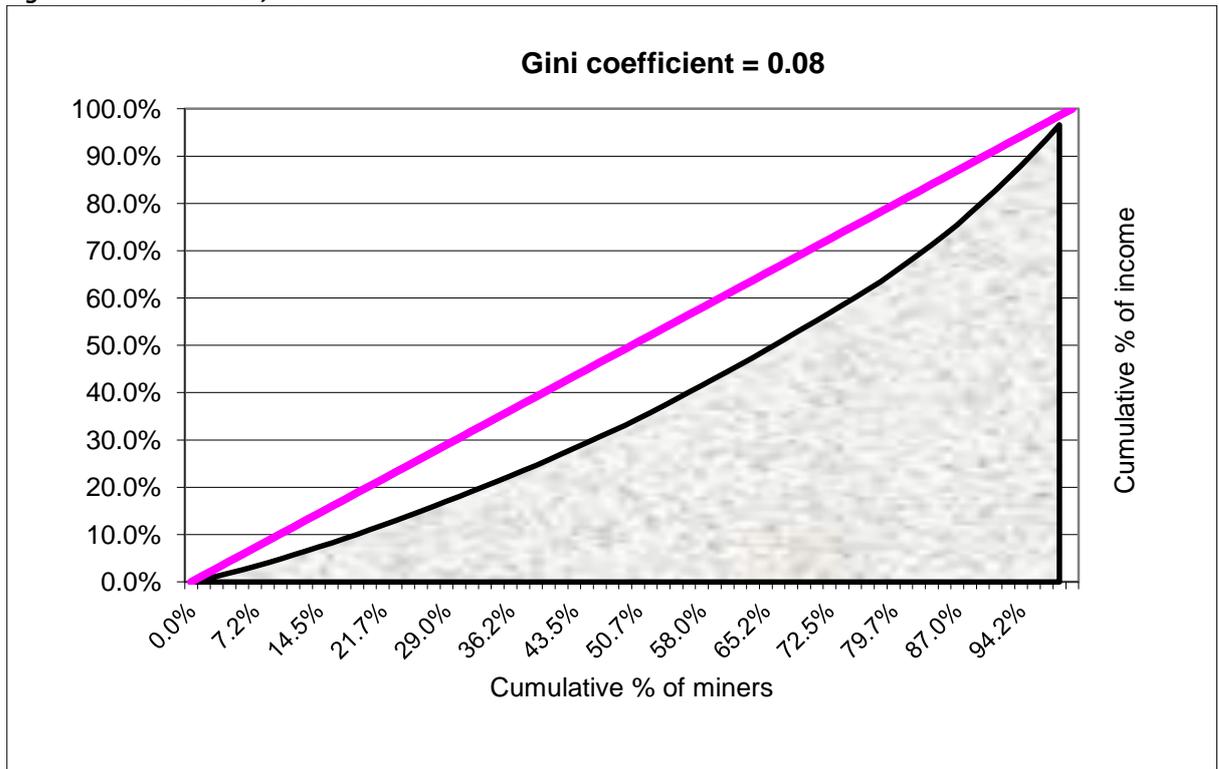
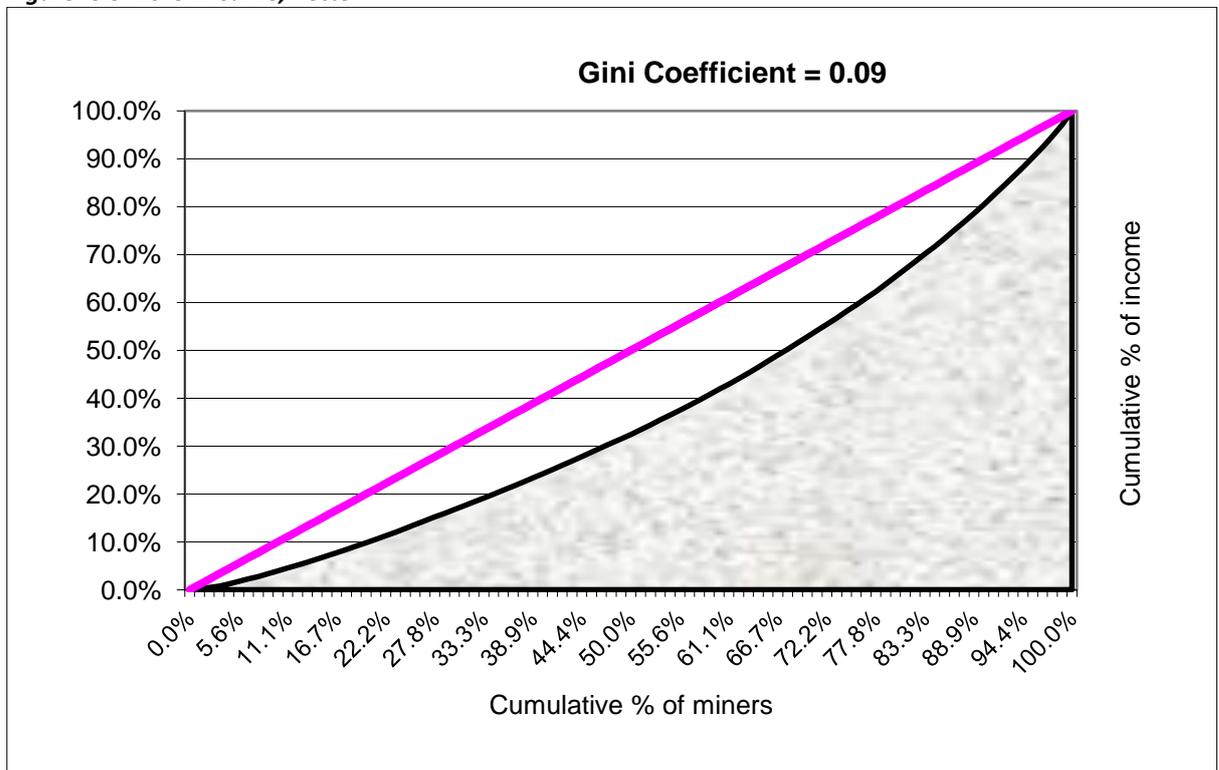


Figure .8.9: Lorenz Curve, Kette



The Gini coefficient (full calculations shown in Appendix VIII) is a measure of inequality of income distribution or inequality of wealth distribution in a population (Madden, 2000). It is defined as a ratio varying between 0 and 1. A low Gini coefficient indicates a more equal distribution of income or wealth and a high Gini coefficient indicates a less equal distribution. The value 0 corresponds to perfect equality (everyone having exactly the same income) and 1 corresponds to perfect inequality (where one person has all the income and everyone else has zero income). Calculation of the Gini coefficients to measure income inequality among artisanal miners in the East Region as a whole showed 0.02. Calculations for the six districts showed Boden Colomine – 0.35; Betare Oya – 0.25; Batouri – 0.06; Yokadouma – 0.18; Garoua Boulai – 0.08 and Kette – 0.09. Although there are variations in the coefficients from district to district, the figures reveal a significant level of income equality amongst miners in the region.

The implications are that the poverty gap between the wealthy and poor miners is insignificant under the prevailing organisational and governance structure. Furthermore, they show that revenue from ASM could help reduce income inequality and alleviate poverty in the region. This important finding contradicts that of an earlier study undertaken in the Sangha Tri-National Park, in which a Gini coefficient of 0.5 in Cameroon indicated a growing level of income inequality from ASM (Tieguhong *et al.*, 2009). Whilst this provided the first indication of income variability and inequality amongst artisanal gold and diamond miners, this study illuminates a detailed and more accurate picture of miners' income within and between different communities in the region.

8.5.3 Enabling workers' well-being and capabilities in ASM communities

Chambers (1997) argues that the well-being approach to poverty and livelihood analysis may allow people themselves to define the criteria which are important (Chambers, 1987). This may result in a range of sustainable livelihood outcome criteria such, including diverse factors such as self-esteem, security, happiness, stress, vulnerability, power, exclusion, as well as material concerns (Chambers, 1989). The miners' well-being and capabilities have been assessed using three measurable indicators that have emerged from this study - vulnerability, power and exclusion.

8.5.3.1 Vulnerability to shocks and stress from mineral depletion

This has been assessed as a portfolio of livelihoods that would sustain miners' lifestyles or generate the minimum US\$1.25 required to keep them above the poverty line of \$1.25 per day. The daily household income from all non-ASM activities presented in 7.8 has been used for this assessment.

Table 8.6: Daily income per household from all non-ASM activities (no. of households)

Mining district	Number of households with a particular daily income										
	\$ 0	\$0.67	\$1.34	\$1.67	\$2.0	\$2.68	\$3.35	\$4.02	\$4.68	\$5.35	\$6.02
Boden-Colomine	0	6	10	0	2	1	2	1	0	0	0
Betare-Oya	0	13	9	2	2	0	4	2	1	1	0
Batouri	50	53	22	0	5	1	0	1	0	0	0
Yokadouma	0	12	11	1	6	1	4	2	4	0	1
Garoua-Boulai	34	16	7	0	3	4	4	1	0	0	0
Kette	46	20	16	0	0	3	4	1	0	0	0
Total	130	120	75	3	18	10	18	8	5	1	1

Source: Author's fieldwork, 2012/13

From the analysis above, up to 89% of the households surveyed subsist on less than US\$1.00 per head per day from non-ASM sources. This demonstrates a very high vulnerability in the event that the minerals upon which they depend become depleted and strengthens arguments for ASM to be mainstreamed within the country's poverty alleviation strategy (this is based on Asah's (2010) study of 'lode gold mineralisation' in the area, in which the finite resource is seen as limited to the mineralised shear zone). This finding is consistent with studies in other parts of the continent (e.g. Kamlongera and Hilson, 2011) where governments are being questioned on the efficacy of their decisions to continue promoting a 'farm first' strategy to address poverty problems, given the limited capacity of smallholder agriculture to alleviate rural hardship on their own (Kamlongera and Hilson, 2011).

8.5.3.2 Vulnerability to land dispossession

Another assessment of vulnerability of the people in this region is the potential loss of livelihood as a result of land dispossession. Once LSM operations transit into full production, the protection of claims by LSM would dispossess ASM operatives of their land. Since titled land is the most formal proof of ownership (albeit the recognition of communal access and control in Cameroon's land ordinances) 99.3% of the mining population would be deemed as being vulnerable to such loss as their lands are not titled. This assessment is based on the proportion of miners who have land titles for the land on which they mine as discussed earlier in Section 6.1.1 – recognition of property rights.

Debates about land acquisition and corporate responsibility, including transparency, greater openness and partnerships with ASM communities and other stakeholders to address land dispossession (Campbell, 2004) have emerged since the 1990s. Such debates have been inspired by neoliberal mining reforms which in turn have induced investment flows in mining in the global south (Bridge, 2004b). In many stretches across sub-Saharan Africa such as Cameroon, investment in large-scale mining operations inevitably means interacting with previously undisturbed ASM populations operating informally, resulting in the need to control and limit the influence of unlicensed miners seen as disrupters to orderly investment regimes and smooth allocation of resources in mining enclaves (Bush, 2009).

8.5.3.3 Vulnerability to environmental change

The third assessment of vulnerability in the area relates to disasters and environmental damage that could undermines people's abilities to diversify their livelihoods, or branch out into other activities to construct livelihoods such as farming, fishing, animal husbandry and hunting. In this study, vulnerability to environmental change such as climate change, pollution, deforestation and land contamination would affect livelihoods in these communities in the following proportions: farming – 95%; hunting – 6%; animal husbandry – 6%; and fishing – 5%. These figures have been arrived at, based on proportion of people depending on these livelihoods.

8.5.4 Enabling miners' well-being through power and exclusion

In the East region, well-being, capabilities and power relations between the stakeholders is mirrored in the enviable positions held by local chiefs, customary courts, *chefs de chantier*, ASM union leaders, vigilante groups, not least, membership with the ruling CPDM party. As illustrated in Chapter 6.3.1 – governance spaces for LSM and ASM, these stakeholders exercise influence and wield power and authority over land access and use for ASM. Being in such position of power or authority does not only enable but also guarantees well-being. On the other hand, exclusion – a process and a state that prevents individuals or groups from full participation in social, economic and political life and from asserting their rights (Beall and Piron, 2005) undermines ASM worker's abilities to achieve sustainable outcomes from their activities. As stated earlier in Chapter 6.4, empirical evidence of social exclusion is multi-dimensional, and includes ethnicity, gender, age, and political affiliation.

8.6 Livelihood adaptation and resilience

The ability of a livelihood to cope with and recover from stresses and shocks is central to the understanding of sustainable livelihoods. As discussed in sections 7.1 and 7.2, the miners have limited access to financial/economic capital, while their skills and educational background indicate deficiency in human capital. Their inability to optimise the livelihood assets required to earn a living makes them less adaptable and less resilient to stresses and shocks which are key to both livelihood adaptation and coping (Davies, 1996). From this study, it is evident that over 88% of households would be operating below the poverty line without ASM. This level of vulnerability translates into their inability to cope (temporal adjustment in the face of change) or adapt (longer term shifts in livelihood strategies) and hence they are inevitably vulnerable and unlikely to achieve sustainable livelihoods.

8.7 Sustainability of the natural resource base

Most of the communities in the East Region are reliant on the availability of mineralised land for their livelihoods to a large extent. According to Conway (1985) and Holling (1993), natural resource-based sustainability refers to the ability of a system to maintain

productivity when subject to disturbing forces, whether a stress (a small, regular, predictable disturbance with cumulative effect) or a shock - a large infrequent, unpredictable disturbance with immediate impact (Conway, 1985; Holling, 1993). Due to the fact that gold and other minerals are finite resources, depleting the existing stocks of gold in the region, coupled with the environmental damage associated with ASM, could result in a decline in the rate at which such lands yields other useful products and services for livelihoods (Scoones, 1998).

8.8 Conclusion

The East Region has a long history of ASM. The developmental challenges in the region, coupled with the absence of a clearly defined resource policy have subjected thousands of rural families in the region to a limited range of livelihood choices. The ubiquity of land availability, poorly enforced legal frameworks and the absence of large-scale mine production has allowed a thriving ASM population in the area. It is the primary activity undertaken by over 95% of the adult population in the communities studied. Here, the miners operate from primary deposits which yield very high returns. Average daily income per head is US\$ 34 in the region, with higher earnings in districts such as Batouri. Gini coefficient measures show moderate-high levels of income equality within and between the mining districts.

Although the lack of micro-financial facilities, economic assets and an uneducated/poorly trained workforce seem to be hampering the miners' ability to optimise ASM productivity or indeed diversify their livelihood portfolios, ASM remains a viable livelihood strategy for many and is the main driver of rural economic development in the area.

Other activities undertaken by ASM miners in the region include farming, trading, fishing, hunting and transportation. Analyses of these activities show a strong connection between ASM and smallholder farming. A majority of those interviewed started their adulthood as miners, leading to the conclusion that this area is not experiencing deagrarianisation which has been widely reported in other ASM communities in sub-Saharan Africa (Bryceson, 1996). Based on the organisational influences and livelihood strategies,

ASM has been assessed as vulnerable, less adaptable and less resilient to the impending shock and stress when LSM operations are ramped up.

As discussed in Chapter Two, literature on ASM has not been 'hooked' to that of livelihood diversification in sub-Saharan Africa as the former occupies such a peripheral position on the economic development agenda of most of these countries (Hilson and McQuilken, 2014) This, they argue, is down to poor understanding of the sector's role in the region's liberalized economies, which has certainly contributed to this oversight; as has the strong influence, at the policymaking level, of unfounded ideas and generalizations about the sector's activities. It is hoped this finding will help illuminate this and other findings of this research will form the focus of the concluding chapter.

9 Chapter Nine - Artisanal and small-scale gold mining in East Cameroon: research contributions and concluding remarks

9.1 Introduction

This chapter summarises the main findings of my research and expands on their theoretical significance. I also document how this research contributes to existing knowledge in the field of artisanal and small-scale mining. Earlier studies (e.g. Nöetstaller *et al.*, 2004) produced an inconsistent and ambiguous account ASM in Cameroon, which is currently perceived by organisations such as the World and Bank and the African Development Bank as representative of country's ASM sector. More recent studies (e.g. Ingram *et al.*, 2011 and Tieguhong *et al.*, 2009) have a rather different focus. The latter's attempt to profile ASM in the country is based on a ten-day exploratory study carried out in Kambele III in 1998. This is not only outdated, but lacks the breadth and depth upon which policy could be formulated and support embedded. This study provides that breadth and depth. With detailed ethnographic field studies conducted in 24 ASM communities for over seven months, this study provides the much needed understanding of the burgeoning ASM economy in Cameroon by profiling and analysing the sector's structural features. It is the first detailed study with such a focus.

The chapter has three main sections. The first provides general conclusions on the key findings of my research, stating the implications of my research findings for policy, intervention and support schemes for the sector. In the second section, I reflect on how this research contributes to ASM studies empirically and theoretically. Finally, I discuss some possible new directions for future research in the area of ASM studies but also more generally for students of resource geopolitics, mining, energy geographies and sustainable livelihood studies.

9.2 Major research findings

The key findings of my research have been categorised into three themes that directly answer my research questions which were first articulated in Chapter 1, namely the nature of the ASM operations in the region; the governance of resources; and the potential for ASM to be a catalyst for sustainable rural livelihoods in the region.

9.2.1 Aspects of ASM operations in East Cameroon

The main features of ASM in East Cameroon have been detailed in Chapter Five (section two). Gold extraction is the main activity. The sector is largely rudimentary, with less than 2% of the miners using semi-mechanised processes. However, this study reveals that the scale of operations is surprisingly large and that there are over 53,000 artisanal miners operating in the six areas studied, with a further 180,000 people believed to be dependent on the activity. This represents over 60% of the population of the area and about 22% of the regions 800,000 people. To date, no detailed or extensive study of the area has produced such evidence.

The miners are well organised and operate in units of varying sizes, anywhere between two and over fifty. It is dominated by young men, most of whom are under 30 years, but with extensive experience in the sector. The structured nature of ASM in the region, from the village chiefs to unions and vigilante groups represents a counter view to the prevailing position in many policy-making circles that the sector is comprised of 'rush-type' activities: that ASM in sub-Saharan Africa is chaotic and entrepreneurial-driven (WB, 2005; USAID, 2005; Havnevik *et al.*, 2007). This reaffirms findings in other studies (Hilson and McQuilken, 2014; Hilson *et al.*, 2013; Hilson and Banchirigah, 2009) that artisanal mining camps are becoming increasingly organised, stratified and policed, providing refuge to tens of thousands of men, women and children. Such outcome could enable the policy-making machinery to better understand the sector and concede that ASM is neither chaotic nor entrepreneurially driven.

The reasons why people engage in ASM in this region shows a different pattern to what has been reported in other parts of the world – where the rise of ASM is attributed to the

unviable state of smallholder farming (Hilson and Garforth, 2013; Banchirigah and Hilson, 2010). Here, the majority of those interviewed (42%), most of whom are 30 years and under (which reflects the ASM population as a whole), have had little involvement in other livelihoods by virtue of the fact that they were born to mining families. Despite such deviation, 29% of the miners surveyed maintain that ASM is their primary activity, but they do diversify their income portfolio by undertaking other activities such as smallholder farming and trading. The notion of seasonal smallholder farmers 'branching out' to ASM to accumulate supplementary income is not a common occurrence in East Cameroon. Rather, miners over 50 years old reduce their trips to and hours in the pits in order to engage in the smallholder farming which is deemed less laborious and less risky compared to ASM. I am not aware that this pattern has been documented in any ASM region in sub-Saharan Africa, or indeed the world.

The social and cultural setting of a typical ASM camp in sub-Saharan Africa is described as consisting of an array of workers with different skills and educational backgrounds – many of whom are retrenched civil servants, teachers and redundant large-scale mine workers, many made expendable under structural adjustment and reform, unable to find viable replacement (Chachage, 1995; Dreschler, 2001; Mondlane and Shoko, 2003; Hilson and Potter, 2005; Hilson and Maponga, 2004; Banchirigah, 2006). Hilson and McQuilken (2014, p.104) describe such setting as '*eclectic*'. The mining population in East Cameroon is devoid of such heterogeneity (see Chapter 5). Over 67% of the miners are primary school leavers, and fewer than 1% are professionals. It is a heterogenous sector which is dominated by the Baya, Kako and Hausa-Fulani ethnic groups. Skills such as those of former LSM employees, pensioners and others mentioned above could not be evidenced during the study. The diversity and quality of talents in countries such as Ghana and Tanzania (Jonsson and Bryceson, 2010) are yet to be witnessed in East Cameroon. There is also little evidence of migration within and between ASM communities as illuminated earlier in section 5.3. This means that ASM in the region is non-migratory, as in other parts of sub-Saharan Africa such as in West Africa where, Yakovleva (2007) argues, mining has stimulated significant urban–rural migration, particularly the movement of groups of skilled and semi-skilled individuals (Yakovleva, 2007).

A major finding of this research is the level of involvement men, women and children, both as workers and pit owners (Chapter Five). Women are as involved in ASM as men, although the level of involvement is governed by the location, ownership and structure of the pits, as other studies suggest. With the exception of Garoua-Boulai, where religion has a strong influence on ASM gender politics (Garoua-Boulai is predominantly Muslim), women in other parts of the region are not subjected to any form of gender-based discrimination. The extent of their involvement is defined by their physical abilities and roles within individual family settings. Children are involved in ASM in their own right, and not as cheap labour as often stereotyped within policy making circles where ASM is viewed as one of the worst forms of child labour (ILO, 2005; MMSD, 2002a), and also as a slave-like form of employment (MMSD, 2002a, p.24). Consistent with findings from studies in other sub-Saharan countries such as Mali (Hilson, 2012), the involvement of children in ASM in East Cameroon as detailed in Chapter Five is attributed to a combination of cultural issues, household poverty and rural livelihood diversification.

ASM gold is sold unprocessed, meaning that mercury is not used for gold amalgamation in the region. The environmental impacts of ASM are therefore small, and relates to diesel pollution, dust, river / stream pollution, deforestation, habitat fragmentation and land contamination.

In contrast to other producing areas studied in the literature, there is no reported conflict between ASM and LSM in the East Cameroon. One factor responsible for this is the near absence of LSM operations in East Cameroon, coupled with the abundance of land held in common pool as illuminated in Chapter Six (Section One). This has allowed ASM operatives to mine directly from primary deposits, contrary to other regions such as Prestea in Ghana (Hilson and Yakovleva, 2007). Recovery rates are high, and ASM generates income that is estimated to be over ten times greater than smallholder farming or other livelihoods. Daily income earned by the operatives ranges from US\$ 32 to US\$ 40. As argued by Hentschel *et al.* (2002), such incomes could be considered as a net contribution to foreign exchange earnings, and lay parallel to the widely conceived notion that ASM productivity is low and those engaged in the activity operate on marginal deposits (Geenen, 2012; Hentschel *et al.*, 2002). Furthermore, Gini coefficient measures

indicate a low level of income equality amongst miners, suggesting that ASM could be a focus of the country's rural development and poverty reduction strategy.

9.2.2 Conceptualisation and governance of resources in Cameroon

The way mineral resources are conceptualised in Cameroon by governments and other stakeholders is intellectually provocative. Since independence, the country has relied predominantly on timber, agriculture and off-shore oil revenues. The transformation of the mining sector through policy and reform will invariably translate into LSM engaging with previously undisturbed ASM populations as had been noted in other places such as Ghana. Until then, the resource policy setting on land, enshrined in the 1974 land ordinance in the country, remains disconnected from the practicalities on the ground. The enforcement of the land ordinance is fraught with complexities. This is evident in the East of the country where thousands of ASM families fully exercise their *de facto* land rights. Access to land for ASM and other activities is largely defined by ethnicity and association with members of a given community through marriage, friendship and settlement as illuminated in Chapter Six (section 6.2). The recognition of customary authorities and their influence over land access and control, together with CAPAM's lackadaisical approach to the sector (as discussed in Chapter Six, section 6.3) could be fuelling the spread of ASM in the region, which has evolved over decades. The empirical evidence here attests to the view that *de facto* tenurial systems could be flexible and responsive to changing economic circumstances (Migot-Adholla *et al.*, 1994).

The political setting in the country has resulted in parallel resource governance structures between other parts of the country and ASM communities. This dichotomy has resulted in a high level of informality as there have been few if any attempts by the GoC to regulate the sector and bring it into the public domain. In East Cameroon, ASM is actively encouraged by the GoC through CAPAM, thereby blurring the perception of informality in the sector in Cameroon. Failure to regulate the sector effectively has resulted in widespread informality in developing countries such as in Ghana where Hilson and Potter (2003) attribute widespread clandestine ASM gold mining to failed attempts to regulate the sector (Hilson and Potter, 2003).

9.2.3 Artisanal and small-scale mining as a catalyst for sustainable rural livelihoods

This study reveals that ASM is the primary livelihood of over 95% of the adult population in the communities studied, providing incomes that are far more significant than other livelihoods such as smallholder farming, hunting, fishing and trading. Unlike in other countries where industry-sponsored sweeps of informal mining camps by national security forces are commonplace (Hilson *et al.*, 2007), the institutional settings in Cameroon allow for widespread informal ASM. The workers have based their livelihood on ASM and engage in little diversification beyond what has been described above. Although there is a poor savings / investment culture amongst the miners, which presents a misleading impression that the activity does not generate sufficient income to sustain the miners' well-being, this study reveals that it is a viable livelihood.

The importance of this sector has been overlooked in Cameroon's microeconomic appraisal and its second and third poverty reduction strategy papers (IMF, 2011), yet if recognised and nurtured, its viability as a livelihood could be a 'success story' that demonstrates that ASM operators can flourish as organised and valued contributors to local economic development.

The average daily income that miners in the region earn is US\$ 34, which is significantly higher than the US\$1.25 benchmark used in defining absolute poverty. If the headcount index were to be used to determine the proportion of the ASM population below the poverty line, then the conclusion could be that there are no poor people in these communities.

9.2.4 Impending LSM boom and policy implications

The discussions in Chapters Five to Eight presents overwhelming evidence of the viability of the ASM sector in Cameroon. With the impending LSM boom in the country (see Chapter Six), there are serious policy challenges for CAPAM and the GoC. Small-scale mining activity in the region is of significant importance, given the exploitive nature of large-scale mines.

As indicated by scholars such as Ross (2001) and Pegg (2002), large-scale mining activity, which is predominantly foreign-owned, repatriates the majority of revenues generated. The revenues generated by small-scale mining activities, however, are generally retained within the host country. The situation in the East Region of Cameroon is similar to that of Ecuador, where an estimated 80% of income from small gold mining activities is invested in the country (includes royalties, income tax and added value tax), with the balance used to purchase machinery, spare parts and consumables from international markets (Sandoval, 2001).

As already discussed in previous chapters, ASM is fueling local economic growth in the area, being a catalyst for sustainable rural livelihood in the region. The high incomes from ASM in the region enables the widespread ownership of assets such as houses, vehicles, telephones and computers, and a luxurious lifestyle. It also fuels downstream activities such as restaurants, bars, hotels, transportation and the ICT4D sector, a scenario which is atypical in rural Cameroon, and indeed other rural stretches across sub-Saharan Africa. This presents a serious policy challenge to the GoC in a sector which has little or no information (in terms of baseline data) upon which policy could be based. Findings of this research, it is hoped, would provide direction for policy in the sector.

Follow on from the above, The GoC should recognize the contribution of ASM sector to the economy, to include: the discovery of mineral occurrences, mineral production and the creation of employment and incomes in the rural communities. In view of this, the Government should be committed to supporting the ASM sector by facilitating the transformation of the present ASM activities into more organized and modernized ASM, and by promoting modalities of mineral marketing which encourage transparent business transactions and discourage smuggling.

9.3 Contribution to ASM research

9.3.1 Empirical contribution

The theoretical framework in Chapter Two helped to illuminate further the gaps in empirical evidence regarding the current trend in ASM policy across sub-Saharan Africa. There has been rather limited research exploring empirically the dynamics of ASM in the region, and there has been a growing voice calling for more empirical research in this area (Hilson and Garforth, 2012; Hilson *et al.*, 2013; Hilson and Garforth, 2013; Hilson, 2005; Hilson, 2009), especially research that adopts a detailed ethnographic approach to investigating the number of people in the sector, their ages, gender, educational and cultural background, reasons why they get into ASM, their motivations and needs. The current poor understanding of the structural challenges of ASM has been exacerbated by the apparent obsession with the economics of GDP and resource rents from LSM by policy advisers, slower pace of formalisation, unhelpful orientation of policy machinery, negative imagery (Hilson and McQuilken, 2014).

My research contributes to the much-needed empirical evidence from the pits, gullies and river channels that facilitate a better understanding of the organisation, operation and dynamics of ASM in sub-Saharan Africa. The primary contribution of this thesis is an empirical demonstration and analysis of the distinctiveness of ASM in East Cameroon. Findings from this research may be successfully deployed to support the development and implementation of policy and support schemes for ASM communities across the sub-continent. My thesis also provides an empirical exploration of the linkages between ASM and smallholder farming, providing further evidence of the growing importance of ASM to communities, as well as the socio-physical ecologies of the region.

9.3.2 Theoretical contribution

The field of ASM has gone through several theoretical phases since the initial publication of a report on Small-Scale Mining in the Developing Countries (UN, 1972). The sector soon became associated with entrepreneurship during the late 1970s and 1980s (Hilson, 2009). Alpan (1986, p.95) pointed out that, in contrast with many other rural development schemes, small-scale miners generally are self-motivated and start their enterprise

without government encouragement and assistance (Alpan, 1986). Similarly, Nöetstaller (1987), who produced the seminal report, *Small-Scale Mining: A Review of the Issues* (Noetstaller, 1987) on behalf of the World Bank, argued that ‘the small enterprise segment has consistently been identified as a fertile ground for the growth of indigenous entrepreneurship [that] in mining, this is particularly true for the artisanal operations, (Nöetstaller, 1987, p.16). Whilst providing fairly thorough accounts of ASM activities, including details of the equipment used and processing techniques, this literature sheds very little light on the types of people who were engaged in the sector at the time (Hilson, 2009). A number of international workshops on ASM took place during this period, including the International Conference on the Future of Small-Scale Mining (1978) and the seminar on strategies for small-scale mining and mineral industries in 1980. According to Hilson (2009), these seminars did very little to advance understanding of the sector’s complex organizational dynamics (Hilson, 2009). The change in perception regarding ASM began in the 1990s. The sector’s rapid expansion, particularly in sub-Saharan Africa, and accounts of it providing employment to vulnerable groups, including women and children, was documented in several studies (Hilson, 2008b; Hilson, 2008a; Hilson and Banchirigah, 2009). These studies suggested that its existence was linked strongly to people’s hardship. This forced policymakers to think more dynamically about its existence.

The idea that ASM, in many cases, is poverty-driven and has become an integral segment of the developing world economy’s rural fabric was first brought to the fore at the International Roundtable on Informal Mining in Washington DC in May 1995 (Barry, 1996). It was also argued at the time that a formalized ASM sector could be a major coup for governments. More recently, the larger trend in the field has been focused on how understanding the dynamics of ASM through baseline census activities, and harnessing the potential of the sector to address locally relevant problems of rural development across many poverty-stricken parts of the world through intervention and support mechanisms (Hilson, 2005). The failure of many of these global support schemes to deliver the desired outcomes has led to a variety of studies exploring ways in which empirically relevant evidence could be used to embed ASM in developing countries’ poverty and rural development strategies.

This thesis contributes to the understanding ASM studies and other aspects of resource geography such as the relationship between neo-liberal states and extractive industries. I explore the economic, social, cultural and governance aspects of ASM in East Cameroon, covering new grounds and revealing aspects of the sector that will stimulate both complementary and parallel investigations.

9.4 Direction of future ASM research

My thesis represents just a starting point in the capture of empirical evidence to understand and support the ASM sector and in rethinking the way it is perceived and how it could be supported. I am not aware of any research which has previously had this detail and specific focus; it is therefore an area that requires more in-depth and comparative research. There are four areas for further research that I consider to be critically important in exploring the dynamics of ASM in Cameroon, and possibly other countries of sub-Saharan Africa and the world at large, which are detailed below.

Based on the empirical evidence presented in this study, the ASM sector in Cameroon shows some distinctiveness from ASM in other regions of the world even in neighbouring countries such as Ghana. Similar studies in other regions of the country could be undertaken to see if such outcomes could be replicated.

This study has been undertaken at a time when LSM operations in the country are still at a nascent stage. It will be relevant for similar studies to be carried out once large-scale mining companies make the transition from exploration to production to establish if the findings will be different to those of this research. One aspect noted in the final stage of my field work, which has not been included in this research, is the involvement of Chinese entrepreneurs in the ASM sector in East Cameroon. This critical development is worth exploring in future. During the seven months of field studies, visible changes to some of the aspects of ASM reported in this thesis were observed, the most notable being the deployment of heavy machinery such as caterpillars and JCBs by the Chinese. It is therefore expected for the dynamics discussed in this thesis to change due to the introduction of the Chinese into the country's ASM sector. A recent example is the struggle between Chinese ASM workers and *galamsey* miners in Ghana, which led to the

death of a number of *galamseys* and the eventual eviction of the Chinese miners (Howe, 2012).

Finally, the scope of this research has been limited to artisanal and small-scale gold mining. Future efforts could be channelled towards exploring ASM of other minerals such as diamond, tin, coltan, copper, tungsten and other minerals that have been discovered in the East and other parts of Cameroon to establish the structural and demographic features and if each community has its own distinct ASM complex.

9.5 Conclusion

Throughout this research process, I have engaged with literature on artisanal mining, recalling accounts of rural dwellers who find themselves in a ‘forgotten world’, and have only one source of hope for a better life – that source of hope being ASM. Spending over seven months in makeshift accommodation with men, women and children in the heart of East Cameroon’s rainforest gave me the opportunity to meet, engage and understand these people as well as their structural, social, cultural, economic and organisational dynamics. At the end of the process, I now have more questions than answers, the most important being why despite being such an important sector in sub-Saharan Africa, including East Cameroon, ASM still struggles to garner support from governments, donor and aid agencies?

This thesis has reflected on why, despite growing economic importance, ASM happens to be a ‘forgotten’ sector and seldom features on the economic development agenda of Cameroon. Lack of detailed census information and a poor understanding of the sector’s role in the country’s liberalized mineral sector have certainly contributed to this oversight; as has the strong influence, at the policymaking level, of unfounded ideas and generalizations about the sector’s activities (Hilson and McQuilken, 2014). A review of country’s mining and land regimes reveal that the status quo will certainly be reversed when LSM operations are ramped up.

In conclusion, the recurrent and underlying theme in this thesis is information gathering, baseline census and empirical evidence to enhance understanding of ASM, and thus

inform policy, intervention and support schemes. This thesis has tried to make this push to a seemingly uncharted territory in its own little way, but the journey may just be another beginning.

10 References

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APPENDIX A: KEY ASPECTS OF CAMEROON'S 2001 MINING CODE

Reference	Commentary on the legislative requirements
Articles 1 - 36 : General Provisions	The preamble of the legislation including general definitions, application requirements for permits and the Mining Title Register which is a register of all approved mining permits in the country and is to be maintained by a Mining Title Registrar within the Ministry of Mines. Specifically Articles 9(3) and 22 detail the time period (maximum of 90days from the date of the submission of an application) within which the Mining Minister must provide a response for an application for a permit (prospecting, mining permit, etc). A lack of response from the Administration after this deadline shall be considered as approval. Article 20 , specifies that Where two or more applications are submitted for the award of a Mining title for part or all of the same land, the first applicant to submit his application to the Mining Title Registrar shall have a priority right over the other applicants, to have his file processed and answered.
Articles 37 -39: Individual Prospectors and Individual Prospectors Card	Individual Prospectors must apply for an Individual Prospectors card from the competent Divisional Delegate of Mines and all his/her activities is not involved in prospecting activities within the perimeter of a valid exploration permit, mining permit or artisanal mining authorisation.
Articles 40 – 44: Artisanal Mining and Artisanal Mining Authorisations	These relate to Artisanal Mining and specifically include the following: <ul style="list-style-type: none"> • An application for artisanal mining authorisation must be prepared and submitted for approval [within 15 days] by the competent authority before mining proceeds. • Authorised artisanal mining concessions shall not exceed 10,000m² in area and operations must include appropriate safety measures. • Where mining permits are granted in an area where there are artisanal mining authorisations, the areas covered by the artisanal mining shall not be part of the wider Mining Permit.
Articles 57 – 69: Industrial Mining Operations – Prospecting Permits , Exploration Permits, Mining Permits	Specific provisions of the legislation include the following: <ul style="list-style-type: none"> • Requirements for the producer to prepare a bi-annual report to the competent authority detailing the works completed, expenditures and all data collected including geological and mineral resources • The only survey based document required to submit an application for an Exploration Permit is a topographic map at a scale of 1:200,000 of the region showing the boundaries of the site • Applications for a Mining Permit shall include a topographic map at a scale of 1:50,000, and an environmental impact assessment detailing the potential impacts of the process and the mitigation measures to be adopted including and environmental protection/rehabilitation and mining aftercare plan.
Article 70 – 87: Extractive industries related to geothermal deposits, spring water, mineral and thermo mineral waters	Details the specifications for the application of prospecting , exploration, mining licences as well as operational (water bottling) licenses for the abstraction and processing of groundwater in the underlying aquifers as well as spring waters.
Article 88 – 97	Details procedures for obtaining licenses and permits for mining quarry products e.g. limestone for cement manufacture. Article 88 -94 relates to industrial quarrying (e.g. with explosives) while Articles 95 – 97 relates to artisanal (quarrying for domestic use, not involving heavy machinery) quarrying.
Articles 98 – 109: Export, Import and Transit Licences	Regulates the procedures for obtaining export, import and transit licenses for the movement of mineral resources into and out of Cameroon.
Articles 109 – 117: Health and Safety	Implementation of appropriate health and safety measures during all mining operations and related activities. This is to include adherence to the applicable sections of Cameroon's Labour Code.
Article 118 -133 : Protection of the Environment	This sections includes specifications to comply with related regulations associated with environmental protection and management (Articles 118 -123) through the lifecycle of the of the mining activity; requirements for an Environmental Impact Assessment (EIA) to be undertaken as part of a Mining Permit Application (Articles 123 – 125); requirements for an Environmental Management Plan to be implemented during the operational phase of the mining activity (Article 126 – 129); specifications for the holder of a Mining Permit to create an "Environmental Rehabilitation Account" in a Cameroonian bank for use for site rehabilitation at the end of the mining operations (Articles 130 – 133).
Articles 134 - 147: Financial Provisions	This sections details the specific financial costs of all activities associated with the mining process including applications for permits, buying and selling the extracted resources. Specifically, Articles 136 – 137 specify the relative proportions for which the fees, royalties and taxes on extracted products shall be distributed between a number of stakeholders including the local population affected by the mining activity, relevant local authority, ministerial department and the Public Treasury.
Articles 148 -162 : Administrative Supervision and Control	Details the procedures and modalities for regulatory control and monitoring of all activities operating under a Mining Licence
Article 163 – 167: Transitional Arrangements	This section relates to the applicable rules to holders of mining permits issued before the passing into law of the 2001 Mining Code.
Adapted from: http://www.cammines.com/cameroon-mining-code	

APPENDIX B KEY LEGISLATIVE ASPECTS AFFECTING THE MINING SECTOR IN CAMEROON

Legislation and Statutory Instrument	Specific requirements relating to the mining sector	Text of Implementation
Law No. 96/12 of 5/08/1996: Law on Environmental Management which sets the legal framework for environmental management in Cameroon including protection of the atmosphere, marine and continental waters, soils and sub soils and biodiversity	Article 7 (1): Everyone has a right to be informed of all activities harmful to human health and the environment and/or measures adopted to prevent or mitigate negative effects	None
	Article 14 (1): The government shall ensure that environmental harm and mitigation must be considered in all economic, energy and land use policies	None
	Article 17 (1): Stipulates the specific requirements of an Environmental Impact Assessment (EIA) for any developments with potential impacts and effects on the environment. Note that Article 20 (1) states that if a decision from the competent Administration [Regulator] is not obtained four months after the submission of the Impact Assessment [Environmental Statement], the developer may begin activities	Decree No. 2005/0577/PM of March 2005
	Article 36 (1): Requirements for the regulator to ensure that the non-renewable resources (e.g. minerals) are rationally [sustainably] managed.	None
	Article 37 (1): A requirement for holders of mining or quarrying permits to rehabilitate the exploited sites	None
	Article 37 (2): Holders of mining or quarrying permits may choose to pay a financial costs of the rehabilitation to the competent authority; the amount and terms and conditions of the payment to be defined by a separate Text of Implementation	None
	Article 50: Mining waste treatment and pollution prevention	None
	Article 67 (1 - 2): A requirement for the exploration and exploitation of mining in an ecologically and environmentally rational manner in line with the applicable laws and regulations	None
	Article 60 and 75: Environmental management and site rehabilitation	None
	Article 79: Legal deterrents for causing environmental harm/impacts or implementing a project which is not as approved range from fines of between £2,500 and £7,500 or a prison sentence of between two and five years.	None
Article 137 specifying the distribution of mining royalties including 50% of the tax revenues generated will go to the state, 25% to the Ministry of Mines for monitoring and regulatory enforcement, 15% to the local authority where the project is located and 10% to the impacted communities	None	
Law NO. 98/005 of 4/04/1998 The National Water Code which institutes a water regime and its enabling instruments which specify the conditions and restrictions concerning the use of water resources for industrial purposes	Article 4: Protection of surface and groundwater from industrial pollution from sources including mining.	Decree No. 2001/163/PM of 08/05/01 Decree No. 2001/164/PM of 08/05/01
	Article 5: List of substances whose discharge into surface and groundwater is prohibited, including discharges from mines	None
	Article 6: Anti-pollution measures and devises	None
	Article 7: Watershed protection	Decree No. 2001/165/PM of 08/05/01
Law NO. 98/015 of 14 July 1998 Law governing Classified and dangerous establishments	Article 3: Categories of classified establishments	Decree No. 99/818/PM of 09/11/99
	Article 8: Standards of waste emissions from classified establishments	None
Law NO.2005/0577/PM of 23/02/2005	Provides the procedural framework governing Environmental Impact Assessment (EIA) for projects including mining in Cameroon	Decree No 0069/MINEP of 03/2005
<p>^aThe majority of Laws and Statutory Instruments of the Republic of Cameroon are available online at the Prime Minister's Office – Official website http://www.spm.gov.cm/en/documentation/laws-and-statutory-instruments.html [Last accessed 27/12/2013]</p>		

APPENDIX C: LAND USE OVERLAP IN SELECTED MINING CONCESSIONS IN CAMEROON

Mining Permit	Company	Minerals mined	Protected area	Legal status	Overlap in Ha
LOBEKE EST	Longsheng Cameroon SA	Diamond	Lobeke	International agreement	17,987
NDJOMBI	Cameroon Mining Tech SARL	Diamond, Gold	Lobeke	International agreement	4,510
AMBAM	GIE Minerals du Cameroun	Gold	Mengame	Cameroon Jurisdiction	15,387
OVENG	Luz Mining Service Ltd	All minerals	Mengame	Cameroon jurisdiction	6,898
BEK	Coast Investments International SARL	Uranium	Nki	International agreement	43,379
DJA	Compagnie Miniere du Cameroun	Uranium, gold, iron, metals	Nki	International agreement	34,984
BOUGMA	Coastal Investment International SARL	Gold	Benoue	Cameroon jurisdiction	5,841
GIDJIBA	Divine Mining ltd	All minerals	Benoue	Cameroon jurisdiction	74,392
SAKJE	Divine Mining ltd	All minerals	Benoue	Cameroon jurisdiction	83,817
TCHOLLIRE	HDS Cameroon SARL	All minerals	Benoue	Cameroon jurisdiction	2,413
BANI	Bocom Petroleum S.A	Gold	Bouba Ndjida	International agreement	3
BOUBANDJIDA	Divine Mining ltd	All minerals	Bouba Ndjida	International agreement	84,628
VAIMBA	Bocom Petroleum S.A	Gold	Bouba Ndjida	International agreement	541
BADEKOK	Camerican Mining	Metals	Boumba Bek	Cameroon jurisdiction	2,728
BINGA	Compagnie Miniere du Cameroun	Iron	Campo Ma'an	International agreement	13,763
MIINKO	Compagnie Miniere du Cameroun	Iron	Campo Ma'an	International agreement	51,044
DJOUM 2	Zamba Gold Corporation S.A	Iron, uranium	Campo Ma'an	International agreement	93,803
MEWONGO	Camus Resources S.A	Iron	Campo Ma'an	International agreement	421
KRIBI SUD	CAPAM Holding PLC	Uranium	Campo Ma'an	International agreement	236
MINTOM NORD	Limestone Cameroun	Limestone	Dja	UNESCO World Heritage Site	4,389
MINTOM II	EGBTP	Limestone	Dja	UNESCO World Heritage Site	10,176
BENGBIS	Venture Capital PLC	Gold, iron, uranium, metals	Dja	UNESCO World Heritage Site	61,727
EDEA_KRIBI	Zamba Minerals S.A	Rutile	Douala-Edea	Cameroon jurisdiction	614
NWANGALE	Optimum Mining Inc SARL	Gold, copper, silver, iron, uranium, cobalt, nickel	Korup	Cameroon jurisdiction	11,851

Modified from Schwartz et al 2012

APPENDIX D SURVEY QUESTIONS – ARTISANAL MINERS

Survey location	
Survey date	
General observations and thoughts	
Interviewee ID	
Major mining district	
Mining site/camp (village)	
Section 1: ASM demographic data , motivations, population involved and production	
1	Age
2	Gender
3	Marital status
4	No of wives
5	No of children
6	No of dependents
7	Ethnic Origin
8	Level of education
9	Resident or migrant
10	Mining experience (years)
11	What motivated you to become a miner
12	Employment type (full time/part time)
13	Is your activity seasonal or all year round?
14	Type of mineral mined
15	Nature of mining operation (open pit/alluvial/eluvial/underground)
16	Average number of trips to mining site per week
17	Employee type (owner/worker)
18	How many people operate at any given time on your site?
19	What are your roles on site?
20	Is there an ASM union/cooperative in this area?
21	Are you a member of such a union / cooperative?
22	What equipment, machines and materials do you use?
23	As an individual, what is your monthly production (grammes)
24	What is your revenue from sale per month ("000" Frs CFA)
25	What was your initial investment in mining ("000" Frs CFA)
26	Where did it come from?
27	Do you have a licence or authorisation
Section 2: Miner's incomes and taxation issues	
28	Do you pay any tax either to the village, subdivision or any government body
29	Do you pay any tax to the owner of the land on which you undertake your activity
30	What is your estimated monthly revenue after taxes and cost of labour, equipment and materials ("000" Frs CFA)
31	What other revenue generating activities do you undertake

Survey location	
Survey date	
General observations and thoughts	
Interviewee ID	
Major mining district	
Mining site/camp (village)	
32	How much (per month) do you generate ("000" Frs CFA
33	How many ASM operatives do you have in your household?
34	What is your household's average monthly income from all sources i.e ASM and non ASM ("000" Frs CFA)
35	What proportion of your income do you spend all your /family daily needs? (%)
36	List your family needs in order of importance
37	What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?
Section 3: Marketing and ASM supply chain	
38	Where do you sell your minerals?
39	Who buys them?
40	Where do the buyers come from?
41	Do you have any relationship with, or agreement to sell to these buyers?
42	How is the price of your mineral determined?
43	Do you have an option to source the best market/prices for your minerals?
44	Is there an official price for your minerals?
45	If yes, who sets the price?
Section 4: ASM and property rights	
46	Who owns the land where you are currently undertaking ASM?
47	If it is your land, how did you acquire it?
48	If it is government or community land, do you pay royalties to the community or government?
49	How can you demonstrate you have rights to the land you mine on?
50	Do you undertake other activities on this piece of land such as farming or animal husbandry?
51	Do you know if the land you currently work on is subject to expropriation by the government?
Section 5: Interface with LSM and Government Support for ASM	
52	Do you have any LSM operations in this area?
53	Have you had any encounter with LSM operators?
54	If yes, provide details of such and encounter
55	Do you receive any support or advice from anyone on behalf of the government?
56	What is the nature of this support?

Survey location	
Survey date	
General observations and thoughts	
Interviewee ID	
Major mining district	
Mining site/camp (village)	
57	List the type of support from government
Section 6: Environmental and Social issues in ASM Camps	
58	Have you witnessed any environmental issues as a direct result of your activities?
59	Name the environmental issues identified
60	Do women have same rights as men in the pits?
61	If no full rights, explain why
62	Do you involve children in mining?
63	Do the national laws allow this?
64	Do sex workers visit this location?
65	Do you patronise sex workers?
66	What is your perception of sex workers visiting ASM camps to render such a service?
67	Are there issues like drunkenness and other anti-social behaviours in this location?
68	Are there other forms of crime here?
69	If there are other forms of crime, how are they dealt with?
70	Any other issues you want to share with me today?
71	What are your major needs?
72	List your major needs in order of preference

APPENDIX E: EXAMPLE RESPONSES TO SURVEY QUESTIONS

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
Section 1: ASM demographic data, motivations, population involved and production	
1	Age – 36
2	Gender – Male
3	Marital status – Married
4	No of wives – One
5	No of children – Four
6	No of dependents – Five
7	Ethnic origin – Kako
8	Level of education – Secondary
9	Resident or migrant – Resident
10	Mining experience (Years) – 25 years
11	What motivated you to become a miner – I was born to a mining family, and mining generates a lot more than farming or hunting in this area.
12	Employment Type (full time/part time) – Full-Time
13	Is your activity seasonal or all year round? – All year round
14	Type of mineral mined – Gold
15	Nature of mining operation (open pit/alluvial/eluvial/underground) – A combination of open pit and alluvial. Underground pits have now become too dangerous.
16	Average number of trips to mining site per week – Five to six days a week.

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
17	Employment type (owner/worker) – Pit owner
18	How many people operate at any given time on your site? – Six for now.
19	What are your roles on site? – I supervise my family and anyone I hire to help in this pit. I also do most of the digging.
20	Is there an ASM union/cooperative in this area? - Yes
21	Are you a member of such a union / cooperative? – Yes. We are all members of the union
22	What equipment, machines and materials do you use? – Pit axes, shovels, pans, motorised pump, wooden sluice, wheelbarrow and ladder
23	As an individual, what is your monthly production (grammes) – It is highly variable. There are times we don't get anything, and there are good times that we recover a lot of gold, but on average, I can say that I recover about 80 – 100 grammes a month
24	What is your revenue from sale per month ("000" Frs CFA) – About 1,800
25	What was your initial investment in mining ("000" Frs CFA) – Nothing, absolutely nothing. Like I said, I started mining when I was a young boy of about nine years old.
26	Where did it come from? – n/a
27	Do you have a licence or authorisation – No. What license are you talking about?
Section 2: Miner's incomes and taxation issues	
28	Do you pay any tax either to the village, subdivision or any government body? - No
29	Do you pay any tax to the owner of the land on which you undertake your activity? – No. This land belongs to our community. Anyone from Dem is allowed to prospect in this area and start mining. If you enter this forest you will see hundreds of workings. They are all operated by people from Dem or our relatives from Kambele.
30	What is your estimated monthly revenue after taxes and cost of labour, equipment and materials ("000" Frs CFA) – I spend about 500 on all the items you have

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
	mentioned, but most of it is spent on hiring young school children who come here to help in the pits.
31	What other revenue generating activities do you undertake? – I don't do anything, but my wife does farming to help feed the family. It is cheaper to buy food than waste precious time to farm when you won't be able to make up to 10% of what an 18 year old would make from mining.
32	How much (per month) do you generate ("000" Frs CFA) - Nothing
33	How many ASM operatives do you have in your household? - Six
34	What is your household's average monthly income from all sources i.e. ASM and non ASM ("000" Frs CFA) – This is difficult to tell because my sons and their mother are independent. But I can estimate that based on what we all recover from the pit every month. It is about 150 grammes, which is equivalent to 3million Frs.
35	What proportion of your income do you spend on all your /family daily needs? (%) – That is also difficult to tell as we don't keep records of what we spend on. However, I can estimate that we spend about 30-35% of our income on all our family needs. But for entertainment, it is difficult to tell. After six days of hard work in the pits, we spend a day resting, and of course Batouri is the place to go and have some fun. It is very expensive. There are times that I spend about 200,000 Frs in one night alone.
36	List your family needs in order of importance – Machines, equipment, technology, medicines and food.
37	What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites? – Like I mentioned earlier, it is difficult to tell as we don't keep such records. However, I can estimate it to be about 10-15%
Section 3: Marketing and ASM supply chain	
38	Where do you sell your minerals? – We sell them here. The buyers come to our houses to buy them. Some do come to right here in the pits to buy our gold.

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
39	Who buys them? – We mostly sell to clandestine buyers who are the highest bidders. We also sell to jewellers who come from Bertoua and Yaoundé. And occasionally when we are desperate for cash and there is no buyer around, we go to the CAPAM office in Kambele II to sell to them.
40	Where do the buyers come from? – They come from everywhere: locally, from Bertoua, Central African Republic, Nigeria, and Chad.
41	Do you have any relationship with, or agreement to sell to these buyers? – No, we sell to the highest bidders.
42	How is the price of your mineral determined? – CAPAM has fixed prices that they offer, but clandestine buyers and jewellers offer a lot more, say about 5000Fr per gramme more than CAPAM. So prices are determined by competition. We also speak to our unions who tell us the price of gold in the world market.
43	Do you have an option to source the best market/prices for your minerals? - Yes
44	Is there an official price for your minerals? – Yes, the CAPAM prices
45	If yes, who sets the price? – CAPAM
Section 4: ASM and property rights	
46	Who owns the land where you are currently undertaking ASM? – It belongs to the community. Any member of this community has the right to mine. All you need to do is inform the village chief, and register with the union. We also allow our relatives and in laws to mine here.
47	If it is your land, how did you acquire it? – It is our communal land. It belongs to us all.
48	If it is government or community land, do you pay royalties to the community or government? – We don't pay anything to the government. It is our land.

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
49	How can you demonstrate you have rights to the land you mine on? - Our ancestors have lived and used this land for thousands of years. We were born here, so we own the land.
50	Do you undertake other activities on this piece of land such as farming or animal husbandry? – No
51	Do you know if the land you currently work on is subject to expropriation by the government? – I don't think the government would want to take this land. If the government needs land for anything, we can give it to them. We have a lot of land here, so land can't be any problem to us.
Section 5: Interface with LSM and Government Support for ASM	
52	Do you have any LSM operations in this area? – No
53	Have you had any encounter with LSM operators? - No
54	If yes, provide details of such and encounter – No
55	Do you receive any support or advice from anyone on behalf of the government? – We heard that CAPAM provides support but we haven't received anything yet. What CAPAM does is buying from us at very low prices and sells to clandestine buyers and jewellers for a profit. You know how corrupt this country is.
56	What is the nature of this support? – No, we don't receive any support
57	List the type of support from government – Nothing
Section 6: Environmental and Social issues in ASM Camps	
58	Have you witnessed any environmental issues as a direct result of your activities? – There used to be a lot of fish in the nearby streams but they have all disappeared due to the panning we do in the stream.
59	Name the environmental issues identified – Mostly pollution and deforestation.

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
60	Do women have same rights as men in the pits? – Well, everyone in my family, including my wife work for themselves. So yes, they have the same rights as men.
61	If no full rights explain why – We all have the same rights.
62	Do you involve children in mining? – Yes
63	Do the national law allow this? – Yes. Is there a part of Cameroon where children don't work with their parents? Now would they learn to become responsible when they grow up?
64	Do sex workers visit this location? – A few of them come here, but they mostly end in Batouri
65	Do you patronise sex workers? – Well, it is fun to spend time with a young and beautiful woman isn't it? But I won't answer that question.
66	What is your perception of sex workers visiting ASM camps to render such a service? – I don't have any problem with that. Cameroon is a difficult country, which is why women prostitute. Even in Yaoundé, most of the prostitutes are patronised by top officials such as ministers and directors, so I don't have any problem with these women coming here to look for money. Remember that they have sons and daughters to send to school like all other Cameroonians.
67	Are there issues like drunkenness and other anti-social behaviours in this location? - Hahaha. Yes it happens from time to time especially when people sell their gold. But this is a common phenomenon in Cameroon, not just in this area.
68	Are there other forms of crime here? – No, this is a peaceful community.
69	If there are other forms of crime, how are they dealt with? – No.
70	Any other issues you want to share with me today? - We have a lot of minerals here but we don't have the knowhow or techniques to extract them. We need help from the government to be able to achieve this.
71	What are your major needs? - Our major problem here is to improve our recovery rates and invest in mining. We don't have banks here.

Survey location	Dem in Batouri
Survey date	08/12/2012
General observations and thoughts	Small pit deep inside the forest. Six miners working on site, all from the same family.
Interviewee ID	189
Major mining district	Batouri
Mining site/camp (village)	Dem
72	List your major needs in order of preference - My wish list is: 1 – building partnership with organisations that have the technology so as to improve on our productivity; 2- assistance from CAPAM with excavating, dredging and metal detecting equipment; 3- training our children to be able to detect highly mineralised areas; 4- assistance with medical and health facilities; and 5- setting up a reliable financial institution where we can save our proceeds.

APPENDIX F: STAKEHOLDER INTERVIEWS

The aim of this interview is to source baseline primary data on the Artisanal and Small-Scale Mining (ASM) sector in Cameroon. This data, it is hoped, will raise the profile of the sector in Cameroon, and inform policy and intervention schemes needed to make ASM a viable, resilient and sustainable livelihood. Information provided will be dealt with anonymously, and used exclusively for academic research. Please note the questions are NOT in any order or importance.

Thank you.

1. What is the name of your organisation?
2. Is it involved in the mining sector in general and ASM in particular?
3. If involved in the ASM sector, briefly describe its role?
4. Is your organisation independent of direct government control? If no, do you work in partnership with other government ministries involved in the mining sector?
5. What is your organisation's policy or guidance on ASM?
6. Does your organisation encourage ASM?
7. What are the minerals mined and in what quantities? What is the monetary value of the products mined?
8. What proportion of minerals exported from Cameroon is mined artisanally?
9. What are the main ASM locations in Cameroon?
10. What is the population of ASM workers in Cameroon and the East region?
11. In your opinion what do you think are the main drivers of ASM in Cameroon?
12. What is the legal status of ASM workers? What proportion of the workers operates with permits?
13. What is the national development role of ASM? Is it evaluated, recognised or ignored?
14. What is the ASM tax regime? Do they pay taxes and royalties for the activities they undertake?
15. How do land rights affect mining rights in the country?

16. What are the challenges facing the workers in the sector? Is there a support scheme for the sector in place or any planned?
17. How will large scale mining operations affect ASM when the former starts production?
18. Who are the main stakeholders in the ASM supply chain (buyers)? Are they regulated under any regulatory framework?
19. What is your assessment of the regulatory capacity for the ASM sector in Cameroon?
20. Have you identified any vulnerability in miner's dependence on their activity as a major livelihood?
21. What support or intervention schemes do you have for ASM workers? Do such schemes provide opportunities for livelihood strategies towards reducing the vulnerabilities identified in 20 above?
22. Do the schemes mentioned above target the reasons why people get into ASM?
23. Have you identified any environmental and social problems emanating from ASM? List them: Examples could include: HIV/AIDS, infidelity and divorces, prostitution, alcohol problems, environmental problems, land disputes, etc.:
24. Are there gender and child labour issues in the ASM sector in Cameroon? What is the official stance on this?
25. What is your approach to crimes in ASM communities, if there are any?
26. Are there any other issues not covered in this questionnaire that you may want to share with us?

Thank you very much for your time.

APPENDIX G: DESCRIPTIVE STATISTICS FROM THE SURVEY QUESTIONNAIRES

		N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
	Major Mining District	389	5	1	6	1539	3.96	.077	1.518	2.30	-.068	.124	-1.082	.247
	Mining Site/Camp (Village)	389	23	1	24	6024	15.49	.321	6.338	40.17	-.469	.124	-.802	.247
1	Age	389	52	14	66	10699	27.50	.575	11.340	128.59	1.357	.124	1.065	.247
2	Gender	389	1	1	2	528	1.36	.024	.480	0.23	.598	.124	-1.651	.247
3	Marital Status	389	2	1	3	483	1.24	.022	.435	0.19	1.306	.124	-.015	.247
4	No of wives	389	4	0	4	820	2.11	.081	1.600	2.56	.172	.124	-1.684	.247
5	No of children	389	15	0	15	1174	3.02	.129	2.553	6.52	1.203	.124	1.649	.247
6	No of dependents	389	12	0	12	937	2.41	.076	1.508	2.27	1.001	.124	4.409	.247
7	Ethnic Origin	389	8	1	9	1730	4.45	.142	2.794	7.80	-.110	.124	-1.500	.247
8	Level of Education	389	3	1	4	529	1.36	.028	.551	0.30	1.318	.124	1.303	.247
9	Resident or Migrant	389	1	1	2	488	1.25	.022	.436	0.19	1.132	.124	-.723	.247
10	Mining Experience (duration)	389	41	4	45	5817	14.95	.425	8.392	70.43	1.558	.124	2.068	.247
11	What motivated you to become a miner	389	4	1	5	907	2.33	.070	1.381	1.91	.639	.124	-.760	.247
12	Employment Type (full time/part time)	389	1	1	2	586	1.51	.025	.501	0.25	-.026	.124	-2.010	.247
13	Is your activity seasonal or all year round?	389	2	1	3	501	1.29	.035	.688	0.47	2.035	.124	2.241	.247
14	Type of mineral mined	389	2	1	3	485	1.25	.033	.659	0.43	2.299	.124	3.303	.247
15	Nature of mining operation (open pit/alluvial/eluvial/underground)	389	2	1	3	764	1.96	.050	.994	0.99	.072	.124	-1.992	.247
16	Average No of Trips to mining site per week	389	5	2	7	1766	4.54	.081	1.593	2.54	.012	.124	-1.472	.247
17	Employee Type (owner/worker)	389	3	1	4	800	2.06	.044	.872	0.76	.900	.124	.398	.247
18	How many people operate at any given time on your site?	389	1178	2	1180	20506	52.71	4.277	84.362	7116.99	6.839	.124	81.764	.247
19	What are your roles on site?	389	6	1	7	1419	3.65	.104	2.051	4.21	-.026	.124	-1.661	.247

		N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
20	Is there an ASM union/cooperative in this area?	389	0	1	1	389	1.00	0.000	0.000	0.00				
21	Are you a member of such a union / cooperative?	389	1	1	2	403	1.04	.009	.187	0.03	5.002	.124	23.135	.247
22	What equipment, machines and materials do you use?	389	5	1	6	1672	4.30	.072	1.419	2.01	-.163	.124	-1.429	.247
23	As an individual, what is your monthly production?	389	120	5	125	13500	34.70	1.464	28.877	833.87	1.352	.124	.927	.247
24	What is your revenue from sale per month	389	2400000	100000	250000	270100000	694344.47	29254.054	576980.136	332906076908.81	1.357	.124	.938	.247
25	What was your initial investment in mining	389	100000	0	100000	4076000	10478.15	721.425	14228.716	202456351.20	3.410	.124	15.903	.247
26	Where did it come from?	383	3	1	4	782	2.04	.065	1.273	1.62	.732	.125	-1.213	.249
27	Do you have a licence or authorisation	389	3	1	4	868	2.23	.034	.676	0.46	1.144	.124	1.520	.247
28	Do you pay any tax either to the village, subdivision or any government body	389	1	1	2	767	1.97	.008	.166	0.03	-5.714	.124	30.803	.247
29	Do you pay any tax to the owner of the land on which you undertake your activity	389	1	1	2	775	1.99	.004	.088	0.01	-11.299	.124	126.307	.247
30	What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	389	2000000	100000	210000	231440000	594961.44	22854.494	450761.087	203185557787.61	1.273	.124	.834	.247
31	What other revenue generating activities do you undertake	389	6	1	7	1359	3.49	.132	2.608	6.80	.317	.124	-1.687	.247
32	How much (per month) do you generate?	389	90000	0	90000	5615000	14434.45	845.221	16670.362	277900975.27	1.671	.124	2.846	.247
33	ASM Operatives in household	389	4	1	5	1040	2.67	.032	.633	0.40	-.216	.124	1.171	.247
34	What is your household's average monthly income from all sources i.e. ASM and non ASM	389	2990000	210000	320000	480440000	1235064.27	29519.370	582212.992	338971967508.55	.977	.124	.724	.247
35	What proportion of your income do you spend all your /family daily needs?	389	60	10	70	11330	29.13	.782	15.428	238.02	.469	.124	-.914	.247

		N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
36	List your family needs in order of importance	388	6	1	7	1412	3.64	.116	2.295	5.26	.217	.124	-1.509	.247
37	What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	389	30	5	35	5132	13.19	.406	8.009	64.15	.747	.124	-.559	.247
38	Where do you sell your minerals?	389	5	1	6	908	2.33	.084	1.649	2.72	.885	.124	-.507	.247
39	Who buys them?	389	3	1	4	812	2.09	.031	.607	0.37	.026	.124	-.122	.247
40	Where do the buyers come from?	389	5	1	6	1125	2.89	.088	1.738	3.02	.478	.124	-1.015	.247
41	Do you have any relationship with, or agreement to sell to these buyers?	389	1	1	2	571	1.47	.025	.500	0.25	.129	.124	-1.994	.247
42	How is the price of your mineral determined?	389	4	1	5	1809	4.65	.043	.850	0.72	-2.400	.124	5.235	.247
43	Do you have an option to source the best market/prices for your minerals?	389	2	1	3	457	1.17	.021	.406	0.17	2.171	.124	3.928	.247
44	Is there an official price for your minerals?	389	0	1	1	389	1.00	0.000	0.000	0.00				
45	If yes, who sets the price?	389	0	1	1	389	1.00	0.000	0.000	0.00				
46	Who owns the land where you are currently undertaking ASM?	389	3	1	4	819	2.11	.040	.794	0.63	.058	.124	-.891	.247
47	If it is your land, how did you acquire it?	389	3	1	4	1467	3.77	.029	.576	0.33	-3.122	.124	10.812	.247
48	If it is government or community land, do you pay royalties to the community or government?	389	1	2	3	836	2.15	.018	.357	0.13	1.978	.124	1.922	.247
49	How can you demonstrate you have rights to the land you mine on?	389	2	1	3	680	1.75	.049	.965	0.93	.523	.124	-1.727	.247
50	Do you undertake other activities on this piece of land such as farming or animal husbandry?	389	1	1	2	737	1.89	.016	.307	0.09	-2.580	.124	4.681	.247
51	Do you know if the land you currently work on is subject to expropriation by the government?	389	1	1	2	751	1.93	.013	.254	0.06	-3.402	.124	9.621	.247

		N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
52	Do you have any LSM operations in this area?	389	2	1	3	737	1.89	.020	.395	0.16	-.895	.124	2.531	.247
53	Have you had any encounter with LSM operators?	389	1	1	2	742	1.91	.015	.290	0.08	-2.823	.124	6.000	.247
54	If yes, provide details of such and encounter	389	1	3	4	1520	3.91	.015	.290	0.08	-2.823	.124	6.000	.247
55	Do you receive any support or advice from anyone on behalf of the government?	389	1	1	2	579	1.49	.025	.501	0.25	.046	.124	-2.008	.247
56	What is the nature of this support?	389	5	1	6	1754	4.51	.089	1.755	3.08	-.951	.124	-.254	.247
57	List the type of support from government	389	5	1	6	1756	4.51	.089	1.757	3.09	-.956	.124	-.250	.247
58	Have you witnessed any environmental issues as a direct result of your activities?	389	2	1	3	554	1.42	.030	.594	0.35	1.074	.124	.145	.247
59	Name the environmental issues identified	389	5	1	6	1554	3.99	.084	1.650	2.72	.064	.124	-1.555	.247
60	Do women have same rights as men in the pits?	389	1	1	2	653	1.68	.024	.468	0.22	-.768	.124	-1.417	.247
61	If no full rights, explain why	389	3	1	4	764	1.96	.071	1.403	1.97	.768	.124	-1.417	.247
62	Do you involve children in mining?	389	1	1	2	426	1.10	.015	.294	0.09	2.771	.124	5.707	.247
63	Do the national laws allow this?	389	2	1	3	709	1.82	.049	.975	0.95	.362	.124	-1.856	.247
64	Do sex workers visit this location?	389	1	1	2	437	1.12	.017	.329	0.11	2.299	.124	3.303	.247
65	Do you patronise sex workers?	389	1	1	2	636	1.63	.024	.482	0.23	-.563	.124	-1.692	.247
66	What is your perception of sex workers visiting ASM camps to render such a service?	389	2	1	3	713	1.83	.035	.693	0.48	.235	.124	-.912	.247
67	Are there issues like drunkenness and other anti-social behaviours in this location?	389	1	1	2	505	1.30	.023	.458	0.21	.886	.124	-1.222	.247
68	Are there other forms of crime here?	389	1	1	2	502	1.29	.023	.455	0.21	.927	.124	-1.147	.247
69	If there are other forms of crime, how are they dealt with?	389	3	1	4	1166	3.00	.040	.788	0.62	-.408	.124	-.335	.247
70	Any other issues you want to share with me today?	389	1	1	2	596	1.53	.025	.500	0.25	-.129	.124	-1.994	.247

		N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
71	What are your major needs?	389	4	1	5	958	2.46	.077	1.510	2.28	.609	.124	-1.080	.247
72	List your major needs in order of preference	389	2	1	3	589	1.51	.026	.506	0.26	.003	.124	-1.854	.247

APPENDIX H: Batouri

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Major Mining District	132	0	3	3	3.00	0.000	0.000
Mining Site/Camp (Village)	132	6	9	15	12.20	2.260	5.106
Age	132	52	14	66	29.76	13.177	173.635
Gender	132	2	1	3	1.59	.741	.549
No of wives	132	4	0	4	2.33	1.496	2.237
No of children	132	15	0	15	3.33	2.776	7.705
No of dependents	132	5	0	5	2.16	1.125	1.265
Mining Experience (duration)	132	40	4	44	16.55	9.678	93.669
Average No of Trips to mining site per week	132	5	2	7	4.72	1.579	2.493
How many people operate at any given time on your site?	132	1175	5	1180	53.02	109.944	12087.725
As an individual, what is your monthly production?	132	120	5	125	42.05	34.597	1196.929
What is your revenue from sale per month	132	240000	100000	2500000	844696.97	689320.320	475162502891.511
What was your initial investment in mining	132	50000	0	50000	8628.79	10301.860	106128325.237
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	132	200000	100000	2100000	717537.88	539829.806	291416219928.291
What other revenue generating activities do you undertake	132	6	1	7	3.49	2.849	8.114
How much (per month) do you generate?	132	60000	0	60000	9242.42	9777.776	95604904.002
Asm Operatives In Household	132	4	1	5	2.68	.646	.417

What is your household's average monthly income from all sources i.e ASM and non ASM	132	290000 0	300000	3200000	1361060.6 1	669570.05 4	448324057367.56 9
Household incomes in UDS	132	5800	600	6400	2700.00	1340.000	896,648,114
What proportion of your income do you spend all your /family daily needs?	132	60	10	70	28.64	15.297	234.004
What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	132	30	5	35	14.48	8.493	72.130
Valid N (list wise)	132						

APPENDIX I: Betare Oya

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Major Mining District	34	0	2	2	2.00	0.000	0.000
Mining Site/Camp (Village)	34	4	4	8	6.18	1.290	1.665
Age	34	45	16	61	33.74	13.774	189.716
Gender	34	2	1	3	1.38	.697	.486
No of wives	34	4	0	4	1.56	1.307	1.709
No of children	34	9	0	9	4.68	2.793	7.801
No of dependents	34	6	1	7	3.47	1.398	1.954
Mining Experience (duration)	34	40	4	44	18.62	10.927	119.395
Average No of Trips to mining site per week	34	5	2	7	5.26	1.746	3.049
How many people operate at any given time on your site?	34	85	5	90	31.82	23.265	541.241
As an individual, what is your monthly production?	34	90	10	100	43.38	28.991	840.486
What is your revenue from sale per month	34	180000	200000	2000000	867647.06	579822.642	336194295900.178
What was your initial investment in mining	34	20000	0	20000	5294.12	7876.045	62032085.561
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	34	157400	176000	1750000	778970.59	502104.992	252109423351.159
What other revenue generating activities do you undertake	34	5	1	6	2.44	1.691	2.860
How much (per month) do you generate?	34	70000	10000	80000	26176.47	19964.318	398573975.045
Asm Operatives In Household	34	3	2	5	2.41	.657	.431
What is your household's average monthly income from all sources i.e ASM and non ASM	34	209000	210000	2300000	1272352.94	547357.613	299600356506.239

Household incomes in USD	34	4080	420	4600	2546.00	1095.000	599,200,713
What proportion of your income do you spend all your /family daily needs?	34	30	10	40	18.82	9.539	90.998
What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	34	20	10	30	17.94	6.642	44.118
Valid N (list wise)	34						

APPENDIX J: Colomine

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Major Mining District	22	0	1	1	1.00	0.000	0.000
Mining Site/Camp (Village)	22	2	1	3	2.27	.767	.589
Age	22	29	17	46	28.14	8.236	67.838
Gender	22	2	1	3	1.45	.671	.450
No of wives	22	4	0	4	1.73	1.549	2.398
No of children	22	9	0	9	4.00	2.545	6.476
No of dependents	22	12	0	12	4.68	2.852	8.132
Mining Experience (duration)	22	23	8	31	16.27	7.139	50.970
Average No of Trips to mining site per week	22	4	3	7	5.77	1.110	1.232
How many people operate at any given time on your site?	22	70	10	80	33.95	23.627	558.236
As an individual, what is your monthly production?	22	80	10	90	37.73	24.237	587.446
What is your revenue from sale per month	22	1600000	200000	1800000	736363.64	490427.855	240519480519.481
What was your initial investment in mining	22	25000	0	25000	9181.82	8133.624	66155844.156
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	22	1150000	150000	1300000	610227.27	359998.271	129598755411.255
What other revenue generating activities do you undertake	22	4	1	5	3.23	.922	.851
How much (per month) do you generate? (CFA FRANCS)	22	50000	10000	60000	23636.36	14324.622	205194805.195
Asm Operatives In Household	22	3	1	4	2.59	.666	.444

What is your household's average monthly income from all sources i.e ASM and non ASM	22	1840000	260000	2100000	1125454.5 5	466565.23 3	217683116883.11 7
Household incomes in UDS	22	3680	520	4200	2250.00	934.000	435,366,233
What proportion of your income do you spend all your /family daily needs?	22	20	10	30	17.05	6.298	39.665
What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	22	20	5	25	17.27	7.025	49.351
Valid N (list wise)	22						

APPENDIX K: Garoua Boulai

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Major Mining District	69	0	5	5	5.00	0.000	0.000
Mining Site/Camp (Village)	69	2	19	21	20.12	.832	.692
Age	69	41	16	57	23.39	7.244	52.477
Gender	69	2	1	3	1.65	.819	.671
No of wives	69	4	0	4	2.04	1.640	2.689
No of children	69	11	0	11	2.20	2.111	4.458
No of dependents	69	5	0	5	2.28	1.403	1.967
Mining Experience (duration)	69	26	7	33	11.75	4.894	23.953
Average No of Trips to mining site per week	69	5	2	7	4.13	1.571	2.468
How many people operate at any given time on your site?	69	68	2	70	26.45	19.243	370.310
As an individual, what is your monthly production?	69	110	10	120	30.58	22.921	525.394
What is your revenue from sale per month	69	2200000	200000	2400000	611594.20	458429.619	210157715260.017
What was your initial investment in mining	69	95000	5000	100000	18086.96	19625.718	385168797.954
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	69	1680000	170000	1850000	515434.78	326373.499	106519661125.320
What other revenue generating activities do you undertake	69	6	1	7	4.51	2.655	7.048
How much (per month) do you generate?	69	60000	0	60000	11739.13	16084.019	258695652.174
Asm Operatives In Household	69	3	1	4	2.72	.591	.350
What is your household's average monthly income from all sources i.e ASM and non ASM	69	2300000	500000	2800000	1195507.25	514420.108	264628047740.835

Household incomes in USD	69	4600	1000	5600	2391.00	1028.000	529,256,095
What proportion of your income do you spend all your /family daily needs?	69	45	10	55	28.55	15.437	238.310
What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	69	25	5	30	11.74	7.318	53.549
Valid N (list wise)	69						

APPENDIX L: Kette

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Major Mining District	90	0	6	6	6.00	0.000	0.000
Mining Site/Camp (Village)	90	2	22	24	22.90	.849	.720
Age	90	46	15	61	25.12	10.026	100.513
Gender	90	2	1	3	1.88	.846	.715
No of wives	90	4	0	4	1.91	1.713	2.936
No of children	90	9	0	9	2.47	2.204	4.858
No of dependents	90	5	0	5	2.10	1.152	1.327
Mining Experience (duration)	90	40	5	45	13.19	7.459	55.638
Average No of Trips to mining site per week	90	5	2	7	4.02	1.406	1.977
How many people operate at any given time on your site?	90	294	6	300	103.01	92.415	8540.595
As an individual, what is your monthly production?	90	105	10	115	28.83	24.735	611.826
What is your revenue from sale per month	90	2100000	200000	2300000	576666.67	494702.271	244730337078.652
What was your initial investment in mining	90	100000	0	100000	8733.33	17510.061	306602247.191
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	90	1570000	180000	1750000	497000.00	372954.948	139095393258.427
What other revenue generating activities do you undertake	90	6	1	7	3.74	2.811	7.900
How much (per month) do you generate?	90	60000	0	60000	10000.00	14142.136	200000000.000
Asm Operatives In Household	90	3	1	4	2.68	.668	.446
What is your household's average monthly income from all sources i.e ASM and non ASM	90	2850000	250000	3100000	1198222.22	549863.268	302349612983.770
Household incomes in USD	90	5700	500	6200	2396.00	1100.000	604,699,225
What proportion of your income do you spend all your /family daily needs?	90	50	10	60	32.94	15.156	229.716

What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	90	30	5	35	11.28	7.628	58.180
Valid N (list wise)	90						

APPENDIX M: Yokadouma

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Major Mining District	42	0	4	4	4.00	0.000	0.000
Mining Site/Camp (Village)	42	2	16	18	16.79	.813	.660
Age	42	35	15	50	26.90	8.911	79.405
Gender	42	2	1	3	1.74	.701	.491
No of wives	42	4	0	4	2.60	1.683	2.832
No of children	42	8	0	8	2.69	2.124	4.512
No of dependents	42	4	0	4	2.02	1.137	1.292
Mining Experience (duration)	42	22	8	30	15.31	6.323	39.975
Average No of Trips to mining site per week	42	5	2	7	4.52	1.534	2.353
How many people operate at any given time on your site?	42	27	3	30	13.88	6.649	44.205
As an individual, what is your monthly production?	42	90	10	100	22.38	19.731	389.315
What is your revenue from sale per month	42	180000	200000	2000000	447619.05	394621.211	155725900116.144
What was your initial investment in mining	42	35000	0	35000	12404.76	6821.986	46539488.966
What is your estimated monthly revenue after taxes and cost of labour, equipment and materials?	42	118000	170000	1350000	393333.33	306406.526	93884959349.594
What other revenue generating activities do you undertake	42	4	1	5	2.29	1.597	2.551
How much (per month) do you generate?	42	80000	10000	90000	30357.14	21763.498	473649825.784
ASM operatives in household	42	3	1	4	2.81	.505	.256
What is your household's average monthly income from all	42	187000	230000	2100000	1010238.10	459811.669	211426771196.283

sources i.e ASM and non ASM							
Household Income in USD	42	3740	460	4200	2020.00	920.000	422,853,542
What proportion of your income do you spend all your /family daily needs?	42	50	10	60	38.10	15.340	235.308
What proportion of your income do you spend on labour, machines, tools, equipment and transport to and from mining sites?	42	25	5	30	9.64	6.570	43.162
Valid N (list wise)	42						

APPENDIX N: GINI COEFFICIENT CALCULATIONS FROM BODEN-COLOMINE

			xi		yi		
	Miners Income	Cum Income	Cum Income %	Cum no of miners	Cum miners %	$x(i)*y(i+1)$	$y(i)*x(i+1)$
1	950000	950,000	3.8%	1	5%	0.003	0.004
2	1200000	2,150,000	8.7%	2	9%	0.012	0.011
3	750000	2,900,000	11.7%	3	14%	0.021	0.022
4	1100000	4,000,000	16.2%	4	18%	0.037	0.034
5	600000	4,600,000	18.6%	5	23%	0.051	0.046
6	450000	5,050,000	20.4%	6	27%	0.065	0.062
7	600000	5,650,000	22.8%	7	32%	0.083	0.092
8	1500000	7,150,000	28.9%	8	36%	0.118	0.123
9	1200000	8,350,000	33.7%	9	41%	0.153	0.151
10	800000	9,150,000	37.0%	10	45%	0.185	0.188
11	1100000	10,250,000	41.4%	11	50%	0.226	0.212
12	260000	10,510,000	42.4%	12	55%	0.251	0.262
13	1400000	11,910,000	48.1%	13	59%	0.306	0.310
14	1100000	13,010,000	52.5%	14	64%	0.358	0.363
15	1100000	14,110,000	57.0%	15	68%	0.414	0.446
16	2100000	16,210,000	65.5%	16	73%	0.506	0.511
17	1200000	17,410,000	70.3%	17	77%	0.575	0.584
18	1300000	18,710,000	75.6%	18	82%	0.653	0.645
19	800000	19,510,000	78.8%	19	86%	0.716	0.736
20	1600000	21,110,000	85.3%	20	91%	0.814	0.845
21	1900000	23,010,000	92.9%	21	95%	0.929	0.955
22	1750000	24,760,000	100.0%	22	100%		
Total	24,760,000					6.477	6.603
						Gini Coeff = 0.252	